

# PC ADVISOR

## 33 TOP digital photo tips & tricks



**Get your BEST EVER holiday snaps**

- Compose better shots
- Extend battery life
- Get better photo prints
- Edit & organise your photo collection



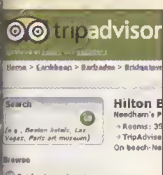
WORKSHOP

### WINDOWS TWEAKS 10 FREE SPEED-BOOSTING TOOLS



REVIEWED

### DUAL-CORE PROCESSORS INTEL vs AMD



FEATURE

### HI-TECH HOLIDAYS DON'T LEAVE HOME WITHOUT THESE GADGETS

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- MADESAFE ANTIVIRUS

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5

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- 512MB 533MHz DDR2 SDRAM
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- 64MB ATI® Mobility™ Radeon™ X300 Graphics card
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- Microsoft® Works 7.0

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- Integrated 8x DVD-ROM/24x CDRW Combo Drive
- 56K Data Fax Modem
- 90 Day Collect and Return Service
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- 56K Data Fax Modem
- 90 Day Collect and Return Service
- Microsoft® Works 7.0

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£20**

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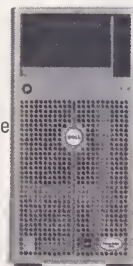
E-VALUE Code: PPUK4-SC74201

#### Further enhancements

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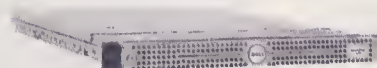
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#### Further enhancements

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- \*\*\*Add 768MB memory & Microsoft SBS 2003 Std Edition (with 5 CALs) £505 excl. VAT

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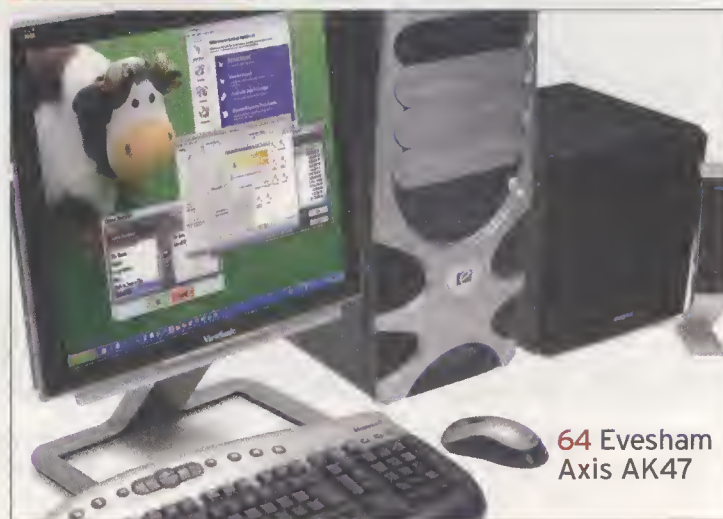
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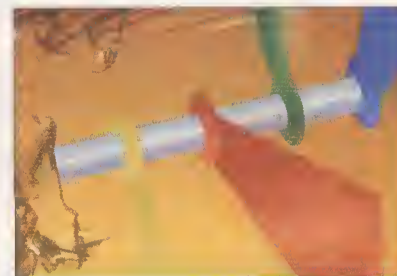
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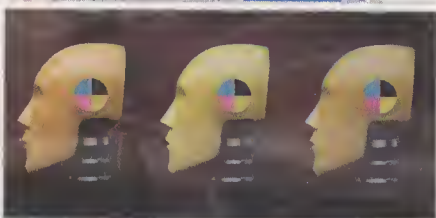
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 Souping up your system needn't cost an arm and a leg. But it does require a bit of thought - what you need depends on what you want to use your system for. We'll show you how to improve your setup with the minimum of fuss.



**98 33 hot photo fixes**  
 We're always being asked questions about digital cameras and photo-editing applications, so we thought we'd answer them all at once. Novices and David Baileys alike will benefit from our unmissable guide.



**110 Laser sharp**  
 Mono lasers can be weak on graphics, while inkjets are slow and imprecise when handling text. Colour laser printers are the way forward - and they're not as expensive as you'd think, either. We've got some of the best ones around for your delectation.



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 High-speed internet connections used to cost a fortune, but recently tempting deals have popped up everywhere. We review the contenders and offer some speed tips for the dialup slowcoaches.



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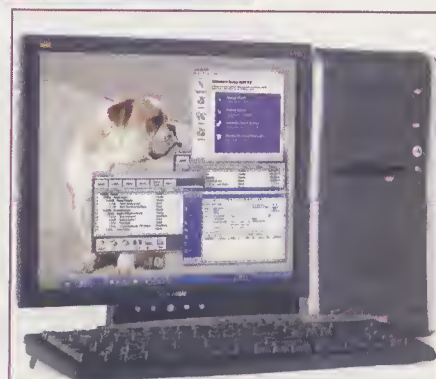
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The Top 10 charts rank and rate the hottest kit every month. If you're searching for the latest Best Buy and Recommended products, look no further than our 100+ reviews

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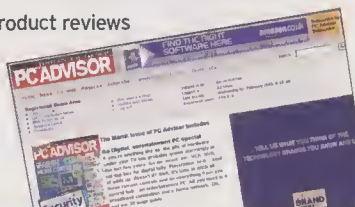
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## Cover disc

For tutorials on the main cover disc programs, see pages 192 to 199.

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GUY DIXON

## Prints charming

With their superb text and graphic output, impressive print speed and newly acquired affordability, colour lasers are gunning for inkjets

Conventional wisdom has it that any self-respecting small business worth its salt needs a laser printer for business-quality text correspondence and an inkjet printer for colour documents - including those all-important quality photo prints. But our latest round-up of colour lasers turns this wisdom on its head.

Historically, mono lasers have served up superlative text quality but have disappointed when it comes to graphics. Inkjets, on the other hand, have done a great job of delivering prints in full technicolour, but their imprecise text handling and low output speed at high resolutions have counted against them.

So what happens if you take the best of both worlds and mash them together into a masterful jack of all trades in the form of a stunning colour laser model? Add running costs into the equation (recent research from industry analyst GfK suggests some 10 percent of consumers consider the cost of consumables to be the most important factor when buying a printer) and you wonder if you need an inkjet at all. Check out page 110 for our in-depth feature on colour lasers, where we've got inkjet killers from as little as £239.

On the subject of plummeting prices, as ever it's the humble desktop PC that is leading the way - almost two-thirds of all PCs sold in the UK now carry a price tag of less than £500. However, some so-called superbudget PCs are more future-proof than others. In a bid to get hold of our dream low-cost system for this month's PC round-up we conjured up an exacting checklist. How about 1GB of DDR RAM and a 160GB hard disk? Chuck in a 17in TFT monitor, a 256MB graphics card - all powered by the inevitable AMD Athlon 64 - and we reckon we're getting pretty close. (See page 212 to see if our Best Buy ticks all the boxes.)

### Mac mini me too

Anyone who's followed the evolution of the desktop PC for more than a year or two won't be surprised to see that Apple continues to serve as the computer industry's leading R&D arm. Intel and its Taiwanese cronies chose June's Computex IT trade show in Taipei to unveil a diminutive PC that looks suspiciously like a Mac mini.

This offering is part of a wider effort by Intel to promote the uptake of its Pentium M processor in small, stylish PCs that are designed to look good in cutting-edge sitting rooms. However, anyone hoping for Apple's attendant iLife applications, covering such areas as music, movie editing and DVD burning, are likely to be disappointed I'm afraid (turn to page 18 for the full story).



Anyone who's followed the evolution of the desktop PC for more than a year or two won't be surprised to see that Apple continues to serve as the computer industry's leading R&D arm

*Guy Dixon*





27mph



64mph



185mph



1875mph



2045mph



10msec



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# Readers' writes

We pass on several more ways to dispose of your computer responsibly, so now there's no excuse for not being green. Elsewhere, Dolby experimentation is frowned upon, 80 is the new 70, and somebody (gasp) sticks up for Bill Gates and the Microsoft machine

## ☒ Dolby in your bonnet

I read your informative article in the July 05 issue about transferring and saving cassette tapes, but I was a little perplexed by the last paragraph about 'experimenting' with Dolby noise-reduction and the comment about it muting high frequencies.

I'm sure the inventor, Ray Dolby, would have something to say about that, because Dolby is both a record and playback system. Put simply, it boosts certain frequencies in the treble region on recording, and reduces it by the same amount on playback - thereby pushing the level of high-frequency tape hiss down by some 10dB (decibels) for Dolby B and 20dB for Dolby C.

If a non-Dolby encoded tape is played with Dolby switched in, it will knock off some of the treble and sound dull. Not the way to do it. Whatever other faults the recording may have, if it is not Dolby-encoded on recording, it's probably best played 'straight', unless you really want it to sound like it's coming from underneath a duvet.

☒ David Perriman, by email

*Siman Easterman, staff writer, replies: we bow to your superior knowledge, David. But in fairness to our writers, they do say to experiment with the Dolby button, and we trust them to know a duvet-muffled sound when they hear one.*

## ☒ Responsible...

For the past five years, I have been collecting, repairing and delivering unwanted PCs to new homes. In fact, I have had more than 50 computers in various states of use donated to me to be fixed and then passed on to people with learning difficulties or other disadvantages. I have picked up a lot of new skills in the process and get great pleasure from seeing the delighted faces of those who receive these recycled systems.



Harry Goran (Readers' writes, July 05) might not be able to do this, but may I suggest that other tech-savvy readers, rather than just giving old PCs to the local charity shop, start repurposing these machines for a good cause? I'd be willing to bet that many PC Advisor readers have the same or more knowledge than me, and could put it to good use redistributing friends' and neighbours' computers, just as I do. ☒ Steve Morrell, by email

## ☒ ...PC...

Harry Goran might like to know that the International Rotary Club has a project called Computers for Education. Computers are collected and distributed throughout the UK and to countries in need.

My branch of the club, Exmouth, has recently sent 40 computers to an orphanage in Moldova and 12 to a junior school in Bourgas, Bulgaria

(the only school out of 40 to have a computer room). There are numerous Rotary Clubs around the country that will help with the re-distribution of unwanted computers, all free of charge. ☒ Bob Cochrane, via email

## ☒ ...disposal

Mr Goran might be able to dispose of his PC here: [www.free-computers.org](http://www.free-computers.org).

☒ Dennis Knight, by email

*Emmo Northam, associate editor, replies: thanks Steve, Bob and Dennis for your suggestions. The WEEE Directive, which will force companies to take responsibility for recycling redundant electronic goods they originally manufactured, should finally become law in January 06. That will greatly help reduce the hardware waste mountain, but the responsibility falls on all of us to be thinking green and redeploying unwanted equipment wherever possible.*



### ☒ I'll have an AGP, please

I'm not one to complain, but the graphics card round-up in the July 05 issue has one thing wrong with it: the budget cards are all PCI Express.

Now, I realise that maybe this is because they provide better value than the AGP equivalents, but the problem is that most PC owners do not have PCI Express. It's only the owners of very new PCs that may have it. Indeed, I myself have a respectable PC, which I built, and it only has an AGP slot. So this article is pretty much useless to me.

I think it would have made more sense to include a selection of budget AGP cards to cater for the needs of the majority of your readers.

☒ Paul Milne, by email

*Rabin Marris, chorts editor, replies: unfortunately, the birth of a new graphics bus always leaves a number of disgruntled users in its wake. Graphics chip and card manufacturers have been falling over themselves to support PCI Express, while new products designed for AGP are extremely hard to find.*

*A quick look at a site such as Overclockers.ca.uk, for instance, shows*

*that the brand-new range of ATI chips are difficult to buy in AGP form - we couldn't locate a single available card using the standard X800, X300 or the X700 Pro chips. In fact, up-to-date AGP cards in the £200-and-below category were, on the whole, very tricky indeed to find.*

*However, hands up, we should have tried harder. Therefore, in the next issue we'll make an effort to cover a few AGP options for those who want to add some fizz to their graphics but who are (understandably) quite happy with their otherwise very satisfactory desktop systems.*

### ☒ Raising the Anti

In reply to the unnamed writer in your June 05 issue who complained about Microsoft's AntiSpyware utility: first, Microsoft has stated that the tool will remain free indefinitely, and not become a charged item. Good ol' Bill seems to have realised that it would be a bit rich to create a vulnerable OS and then charge us to keep it safe.

Second, the program deliberately doesn't show low-risk cookies, simply because of their value to the average user. Cookies play an important role

in day-to-day internet use, and by their very nature they store data about you and your machine. Here's my advice: live with it.

These days there seems to be a general paranoia about viruses, spyware and the malicious activities of other internet users. I for one am firmly of the belief that common sense is a far greater tool in the long term than any number of utilities and apps. If you keep your surfing clean, don't install anything unless you know exactly what it is and - most importantly - learn what your programs and applications actually do, you'll find that your PC stays (reasonably) clean. ☒ Alex Christie, by email

*Simon Easterman, staff writer, replies: unfortunately, Mr Gotes may not see things quite as you do, Alex. While AntiSpyware is likely to remain free, Microsoft's upcoming OneCare service, which aims to keep your PC tidy, safe and secure, will be subscription-based. It makes you wonder why they built it so messy, vulnerable and easy to breach in the first place. Watch this space for a review of the OneCare service.*

### Write to us

If you want to air your views, please write to PC Advisor, FREEPOST 20 LON87018, London W1E 4AN, or email us at [pcadvisor\\_letters@idg.com](mailto:pcadvisor_letters@idg.com) or fax us on 020 7580 1935. Please mark emails 'Readers' writes' in the subject heading.

## Star letter

Our star letter writer wins this third-generation 16-speed ND3540 DVD rewriter from NEC

I had to smile at the letter from Brian Lewis last month. He has managed to put a few bits together and it's worked! This makes him feel bigheaded because he's 70.

Well, I was 80 on 30 April, and last year I was caught by an I Worm/Netsky.Q virus that ZoneAlarm and AVG said they couldn't deal with. I was annoyed by this because the email looked like a genuine one from my wife's cousin.

So I rebooted using my Windows 98 rescue disc and went into MS-DOS and down the C drive tree to the Outlook Express directory. The only thing there was a photo file that I knew I had deleted. I then called up Debug and disassembled the file. Into CS:0100 and CS:0101 I put in CD 20, then I sat back watching my Desktop return to normal.

To automate the process I produced a header that moved the file pointer to the INT 21 shutdown instruction and, using a batch file, attached the header to the front of the suspect file so it closed itself before the virus could run. I called this 48KB program Detox. In effect I was adding a virus to kill a virus. Simple, but it will stop any program running if invoked.

Now - how's that for bigheadedness? Is there anyone out there in readerland who would like to try and 'trump' me? ☒ GE Miller, via email

*Simon Easterman, staff writer, replies: well done indeed - that's an impressive achievement for anyone. It would seem churlish not to give this the Star letter award after we gave it to Mr Lewis (although we don't necessarily want these pages to turn into a riot of one-upmanship) Keep up the good work. Oh, and a belated happy birthday.*

**NEC** Call 020 8752 3665 or see [www.nec.co.uk](http://www.nec.co.uk) for more info

## Big two seek dual control

Office and home PCs can now be powered by dual-core processors, with the formal arrival of Intel's Pentium D and AMD's Athlon 64 X2

**D**ual-core chips contain two processors on a single piece of silicon and represent one of the biggest changes in PC processor architecture for several years. They offer higher performance because tasks can be balanced between the cores.

For instance, tasks such as editing video and burning discs can be done at the same time without slowing each other down.

Microsoft's Windows XP operating system is already set up to take advantage of the technology, as are many applications.

At the moment, AMD's chip is considerably more expensive than Intel's. While the top-of-the-range Pentium D 840 is going for £292, AMD's equivalent, the Athlon 64 X2 4800+, will set you back £553.

However, the Athlon 64 X2 is hardware-compatible with motherboards for AMD's single-core Athlon 64 chip, whereas the

Pentium D requires a new chipset and additional cooling. AMD claims this soaks up its chip's extra cost.

So now that they're here, are dual-core chips for everyone?

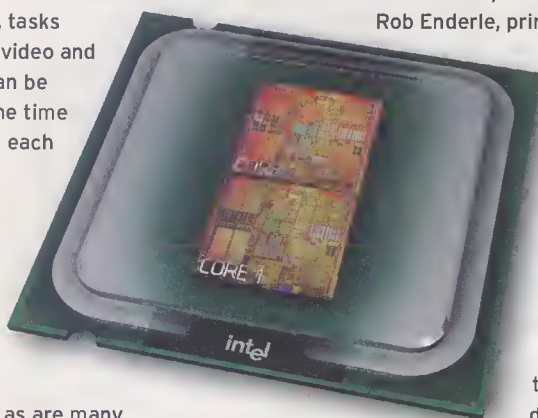
The answer depends on your needs, said Rob Enderle, principal analyst with the Enderle Group.

Users who recently bought a system needn't rush into replacing it with a dual-core model, but users just replacing their PC now might consider the new technology.

This is because the new chips will deliver even greater performance gains

when used with a 64bit operating system. Microsoft's new 64bit version of Windows is hard to obtain for the average user, and there are driver issues. But, said Enderle, "If you want a machine that's ready for Longhorn, that's when dual-core comes into play."

For a performance comparison of the Intel and AMD dual-core chips, turn to page 58.



## Intel wants DRM without the drama

One aspect of the firm's Pentium D range that it isn't trumpeting is the presence on the chip of embedded digital rights management

The Pentium D 840, 830 and 820 all come DRM-enabled. What this means, at least in theory, is that they can allow copyright holders to prevent unauthorised copying and distribution of copyrighted materials from the motherboard rather than through the operating system, as is currently the case.

This takes Microsoft and the entertainment industry a step closer to their dream of controlling copyright through your PC's hardware rather than its software.

The situation presents a dilemma for IT security managers and users, as they may now be beholden to hardware-embedded security over which they have no control, and which they know little about.

None of Intel's launches referred to the technology but, when asked, a representative confirmed its presence. However, he would not elaborate on its nature, saying it was not in the interests of his company to spell out how the technology works.



## Playing the publicity game

The three console giants previewed their future releases at the Electronic Entertainment Expo in Los Angeles in May

**S**lim designs, wireless controllers, media-friendliness and massive boosts in power were the common themes as the Microsoft Xbox 360, Sony PlayStation 3 and Nintendo Revolution got their first outings.

All three consoles will be released next year.

Microsoft's Xbox 360 is a powerful PC disguised as a gaming system. Microsoft has intimated that it could supplant the Media Center PC to form the centrepiece of the digital, connected home.

Users will be able to stream media from portable devices or Windows XP PCs, as well

## Lastminute.com - sold

In a move that is intended to create Europe's largest online travel service company, Sabre Holdings, the operator of Travelocity.com, has bought Lastminute.com for £577m.

The deal fits into Sabre's overall strategy of extending its international reach as an e-commerce travel retailer.

Sabre added that it was interested in Lastminute.com, in part, for its high brand recognition, supplier relationships (currently it has around 13,600) and the size of its user base.

Lastminute.com currently has more than 9.8 million subscribers to its weekly newsletter.





as rip music to the Xbox's detachable (and upgradable) 20GB hard drive.

Powered by a custom-made three-core IBM PowerPC-based chip running at 3.2GHz, the new Xbox should have enough oomph to keep up with even the zippiest PC.

However, that's nothing compared with the heft of Sony's PlayStation 3. With a seven-core processor and a brand-new graphics chip from nVidia, the PS3 will work at a rate of two teraflops (two million million operations per second). That's about twice the speed of the Xbox 360.

Besides playing games, the console will also double as a player for high-definition movies on Blu-ray disc. PS3 games will also

come on Blu-ray disc, and the drive will support almost all flavours of CD and DVD media and Super Audio CD.

The Nintendo Revolution looks to be a truly tiny console: about the size of three DVD cases. Unfortunately the additional details Nintendo were willing or able to release were similarly unobtrusive.

Regarding the chips, Nintendo had the names (Broadway and Hollywood) but not the numbers, so making comparisons with the Revolution's rivals isn't yet possible.

There will be Wi-Fi and online gaming and the machine will play DVDs with the addition of a "small, self-contained attachment".

A bonus over Microsoft, however, is backwards compatibility with NES, Super Nintendo and Nintendo 64 games.

## XXX marks the smut

Approval granted to plan for adult websites to use new domain name '.xxx' amid consternation from net privacy campaigners

The Internet Corporation for Assigned Names and Numbers (ICANN) has approved a plan for pornographic websites to use addresses that end with '.xxx.'

The decision in favour of establishing what would amount to a virtual red-light district for providers of pornographic content and their customers represents a U-turn for ICANN, which rejected an application for the .xxx suffix back in November 2000.

Those in favour of setting up a red-light district argue that .xxx web addresses will shield children from pornographic content more effectively, by allowing families and others using filtering software to block access to sites ending with these letters.

ICANN's latest decision, however, has not been greeted with universal approval. "The existence of dot-ex-ex-ex is likely to create a political and litigious firestorm," said Lauren Weinstein, a well-known net privacy campaigner, in reaction to the proposal.

According to Weinstein, the arrival of the '.xxx' domain will start a heated debate as to what counts as an adult site, with the US religious right determined to shoehorn into the new domain any website with content that could be construed as inappropriate for children.

**"The existence of dot-ex-ex-ex is likely to create a political and litigious firestorm"**

## Undercutting and pasting Adobe

Two software companies have set their sights on the giant's successful Acrobat products

Arts PDF and ScanSoft are introducing PDF creation and editing tools promising more functionality at a lower price than Adobe's Acrobat products.

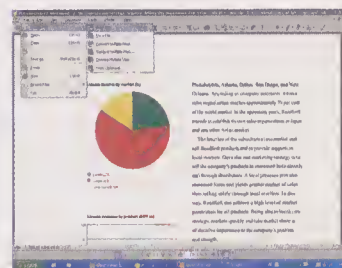
ScanSoft's PDF Converter Professional 3.0 is an application for business users that is simple and cheap enough to be deployed across all of an organisation's desktops.

Along with faster PDF creation, PDF Converter Professional 3.0 also offers features that Acrobat doesn't provide at all.

These include the ability to edit PDF text and graphics, a FormTyper feature which converts PDF forms into a "fillable" format you can type details into and a conversion tool that retains formatting between PDF and Office documents.

Adobe Acrobat Professional, which includes tools for graphic design professionals, is priced at £449, compared with a tiny £59 for ScanSoft's PDF Converter Professional 3.0.

Arts PDF recently shipped its Nitro PDF, a PDF-creation and editing product, at a similar price to ScanSoft's product. Nitro PDF gives users full control of PDF documents, including commenting, form-filling, text editing and one-click creation from Office documents.



## Wireless USB making progress

Cable-free USB (universal serial bus) is one step closer with the completion of the Wireless USB 1.0 specification, but questions still remain.

The Wireless USB Promoter Group, which created the specification, has handed over management of the standard to the USB Implementers Forum, the governing body for all USB specifications. Testing for compliance and interoperability should begin by mid-summer.

However, standardisation of ultrawideband (UWB), the technology wireless USB is based on, has stalled. In addition, regulatory bodies have expressed concerns about UWB over possible interference.

## Ricoh rips up camera rulebook

New sub-£300 Caplio combines 8Mp power with petite dimensions



Imaging specialist Ricoh has rewritten the rules of digital photography by launching a camera that packs an 8Mp (megapixel) CCD (charge-coupled device) in to a compact body for under £300.

The Caplio GX8 has a 28mm lens and a built-in flash, which can be enhanced by add-on lenses and an external flash respectively.

Photography fans after 8Mp+ cameras are more used to trawling the racks of hefty

single lens reflex (SLR)-style models in camera shops than seeking out the dainty dimensions of compact cameras such as the 28mm-thick Caplio.

The level of detail the CCD renders means snaps stored as uncompressed Tiff files can be turned into A3 photo prints. However, many film photographers claim that at least 12Mp of detail is required if digital cameras are to come close to emulating the sensitivity of 35mm film.

*PC Advisor* was one of the first to try out the Ricoh Caplio GX8 and, while we weren't wholly impressed with its looks or, indeed, some of its features, we believe the price point and level of detail offered by the GX8 may well usher in an era of lower-cost cameras with high megapixel ratings. See page 67 for the full review.

## Solid state is tougher than hard disk, says Samsung

**S**amsung Electronics has developed a replacement for conventional hard drives that is based on flash memory chips.

The solid-state disk (SSD) uses memory chips in place of the mechanical recording system used inside hard drives. The SSD operates silently, consumes five percent of the power used by a hard drive and weighs less than half as much. It has no moving parts, so it's more resistant to harsh environmental conditions and shocks.

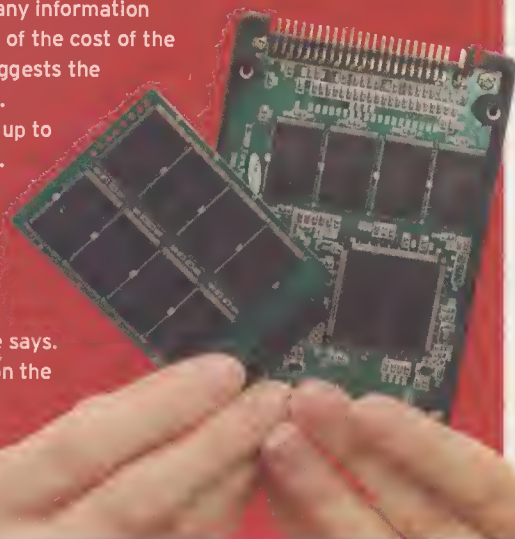
Flash memory technology isn't new and these advantages have been known for years. But such solid-state disks have not been used previously because they are much more expensive than conventional hard drives.

So far, Samsung has declined to provide any information about its SSD's price. However, a calculation of the cost of the memory components used in the devices suggests the chip cost of a 16GB SSD will be almost £490.

At present, laptop drives at capacities of up to 30GB can easily be found for less than £109.

The price difference between flash memory and hard-drive storage has been narrowing and continues to do so, says Simon Woo, an analyst at Merrill Lynch. Eventually SSDs will be able to compete on price, but that time is several years away, he says.

In the meantime, Samsung may depend on the industrial or military markets, which will be attracted by the device's resilience and less focused on cost issues than the consumer market.



## Count zombies with Cipher

Internet users concerned by the spiralling number of zombies - infected PCs remotely controlled by virus writers - can keep track of how afraid of the phenomenon they should be by visiting CipherTrust's ZombieMeter online resource.

The ZombieMeter gives visitors to the site hourly updated information on the global activity of new zombies by tracking data it receives via its IronMail email security appliances.

To use the ZombieMeter, visit [www.ciphertrust.com/resources/statistics/zombie.php](http://www.ciphertrust.com/resources/statistics/zombie.php).

Zombies are dangerous because they are often used to launch denial-of-service (DoS) attacks or send unwanted email.

CipherTrust's counter offers no defence for the internet user - just information. But you know what they say: it's better the zombie you know...



## Sony's incredible shrinking camcorder

**S**ony has shrunk its latest high-definition (HD) camcorder to about a third of the weight and half the size of its predecessor. What's more, the HDR-HC1 is also half the price of the previous model.

Sony managed to cut down the size and price of the camera by working on two main areas.

First, the new camera features a single Cmos image sensor, compared with the three CCD sensors on its previous model. The HDR-HC1 also uses a smaller lens, with a 10x optical zoom.

Second, the size of the electronics has been reduced. The number of circuit boards has been cut from five to two and the total component count is down from 3,000 to 2,000.

The camera measures just 2.8x3.7x7.4in and weighs 63g without the battery.

It should be available in July, and is likely to cost around £920.



## Banks thwart phishers with transfer go-slow

Barclays, NatWest, HBOS and the Royal Bank of Scotland have started increasing the time it takes to make online transfers between accounts at the same bank, in an attempt to clamp down on phishing fraud.

There are natural delays for transfers between banks, so it is believed phishers started using local accounts to steal funds before fraud can be detected.

A spokesperson for Barclays confirmed that from now on, instant intrabank transfers will be delayed for a full working day while checks are run on the account holder and beneficiaries. The delay will only affect customers the first time they set up a beneficiary.

The response of other banks remains unclear. If only a few banks make life harder for phishers then they might simply migrate to other institutions.

This raises the question of introducing consistent standards across the industry, but a spokesperson for the Association for Payment Clearing Services (Apacs) said: "There is no way we can mandate industry-wide on this, because each bank will have its own systems."

Apacs figures show that UK phishing fraud was worth around £12m in 2004.

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## Law rains down on Torrent

Elite Torrent P2P site targeted with searches and confiscations

US law enforcement officers have forced P2P (peer-to-peer) network Elite Torrent to close down, after the US Department of Justice sanctioned the first criminal-enforcement action against BitTorrent network users.

BitTorrent allows users to download content concurrently from multiple peers.

Immigration and Customs Enforcement and the FBI served 10 search warrants against members of Elite Torrent. Federal agents also confiscated the server responsible for all file-sharing activity on the network.

The catalyst for the action, code-named Operation D-Elite, appears to have been the proliferation on the network of an illegal copy of Star Wars: Episode III: Revenge of the Sith.

An Elite Torrent user had posted a 'workprint' version of the movie on the site days before the official release date, 19 May.

The site was subsequently visited by more than 100,000 users a day, the Motion Picture Association of America claimed.

DoJ acting assistant attorney general John Richter said: "Today's crackdown sends a clear message that anyone involved in the online theft of copyrighted works cannot hide behind new technology."

It is not yet known whether the US will push for legal action against UK-based site members.



## PCs strike back with Intel "mini" for home use

AOpen has matched the minute measurements of Apple's Mac mini with a desktop PC using Intel's Pentium M processor.

The prototype product, which is the size of a small stack of CD cases, was shown off on Intel's stall at the Computex technology show in Taipei last month. It forms part of a larger effort, backed by Intel, to promote the use of the Pentium M processor in small PCs designed for living rooms and entertainment centres. The firm is working with several manufacturers on similar PCs, to be released later this year.

The £399 Mac mini drew favourable reviews from Apple fans for its simple design and compact chassis when it was unveiled in January at MacWorld.

A spokesperson conceded that the AOpen machine draws its design influence from the Mac mini, but said Apple had been expecting look-a-likes.

The Pentium M's power characteristics make it much more suitable for entertainment applications than the Pentium 4 or new Pentium D processors, which are powerful but require sophisticated and noisy cooling technology.

AOpen's machine, available with 40GB or 80GB hard drives, will go on sale in September. Prices are yet to be announced.



## WiMax gets the Las laugh

Intel's WiMax demonstration in May gave telco and web service providers plenty to think about.

The firm's broadband wireless system gave net access over 500 square miles around Las Vegas, including a point 12 miles into the desert, at 7Mbps (megabits per second).

Domestic broadband is usually received at no more than 2Mbps.

## 64bit computing? Wait for Longhorn

After more than 18 months of delays, Microsoft's Windows XP Professional x64 Edition operating system is finally here.

But even if your PC has a 64bit chip, you might want to wait for Longhorn, Microsoft's next-generation Windows OS, due out in 2006.

XP x64 can process data in 64bit chunks and address a whopping 128GB of RAM (up from 4GB in today's systems), allowing a dramatic increase in performance. Problems abound, however. For instance, Microsoft has made headway with the recalcitrant installers that plagued pre-release versions of x64, but many 32bit applications - including some Microsoft products, such as the popular PowerToys for Windows XP - still balk at installing or running on XP x64.

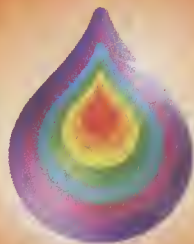
Also, some small features in XP x64 don't work as they do in 32bit XP. For example, x64's Outlook Express can't check spelling.

Although XP x64 ships with more than 15,000 drivers - a greater number than any previous Windows version - and even more are available via Windows Update and third-party developers, many drivers aren't available - and perhaps never will be. Consumer goods such as MP3 players (including the iPod) and some scanners lack drivers; graphics cards and various mass storage devices are better supported.

Microsoft says the transition to a 64bit desktop OS will take a few years, and that 64bit computing will be mainstream only with Longhorn, so you're probably better off ignoring XP x64 and looking at 64bit hardware - especially PCs that can address 8GB or more of RAM - when you buy your next system. That way, you can adopt XP x64 - or more likely a 64bit Longhorn OS - down the road.



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## New Toshiba robots are good listeners

Latest sight- and sound-recognition technology enables firm's Apri models to recognise owners and cope with real-life situations

Toshiba has developed technologies that enable robots to talk to several people at once and follow them around without bumping into them.

The company wants to produce robots that can help people both in and outside the home and plans to have products combining these latest technologies on the market in five to six years.

Toshiba has demonstrated the technologies with two robots: ApriAlpha V3 and ApriAttenda.

ApriAlpha V3 (above), also known as Apri sharp ear, is ball-shaped and 43cm high. It has six microphones that, combined with voice signal processing technology, enable it to understand up to six people simultaneously. In the demonstration, it also performed tasks such as turning on a TV.

ApriAttenda is 90cm high and has an ultrasonic sensor and can follow a walking person, stopping whenever they stop. ApriAttenda uses an image-processing algorithm to identify people registered in its database from the colour and texture of their clothes, at distances of up to 5m.

The robot can also avoid obstacles and search out and find the person if they move out of sight or too far away to recognise. If that fails, it has a last resort of calling to the person. These abilities are important if robots are going to move beyond entertainment functions and start to cope with real-life situations in the home and in the street - for example, helping people when they go shopping.



## Luxpro Tangent: like the iPod, only more so

Taiwanese company Luxpro has unveiled two new digital music players bearing a striking resemblance to the iPod Shuffle MP3 player, but with a little bit more to offer than Apple's minimalist bestseller.

The Top Tangent and EZ Tangent are new versions of the company's Super Tangent, which first appeared in March and caused a stir because of its similarity to the Apple player.

All three Luxpro players are small, thin and rectangular, with rounded corners. The navigation controls are arranged in a circle on the front, with settings switches on the reverse. A cap covers the USB connector. Where the new players break the iPod mould is in the addition of Oled (organic LED) screens.

The Top Tangent has a 64x48-pixel screen, while the EZ Tangent has a 128x64-pixel screen. These mean the players can display track information drawn from the ID3 data in MP3 files. Other differences include the ability to record from the built-in FM radio and a digital voice recorder.

The Tangents are compatible with MP3, Windows Media (including digital rights management-protected files) and WAV files. Like the original Tangent, they will be available in 512MB and 1GB capacities.

Battery life has been reduced from 12 hours on the first player to 10 hours on the new models, which will be available in white, black and red.

Both are scheduled to enter production in late July. Pricing details are not yet available, but a spokesperson estimated the addition of screens would add about £3 to £6 to the bulk purchase price. The Super Tangent costs about \$64 (£35) in bulk and retail for about \$100 (£55).

## AOL takes AIM at webmail

Firm launches service as part of test upgrade

AOL has introduced a free webmail service as part of a test upgrade of its AOL Instant Messenger (AIM) service. The second beta release of AIM 5.9, available now, includes a webmail account featuring 2GB of storage, spam filters, antivirus protection and drag-and-drop message-organising functionality.

Other features include search functionality and the ability to cancel a message after it has been sent, as long as it hasn't been read and was sent to a recipient with an aol.com or aim.com email address.



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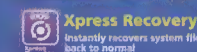
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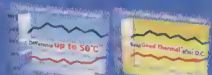
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TECHNOLOGY

## Netscape splices IE and Mozilla

Like a team of Dr Frankensteins, the programmers at Netscape have resurrected a browser that most web users had left for dead, and grafted on an extra head.

Netscape 8.0 lets you view pages on a 'safe' whitelist as you would in Microsoft's Internet Explorer 6.0, with ActiveX and all other functions on. If you visit a site on a 'risky' blacklist, the browser blocks potentially unsafe functions automatically.

Non-listed sites will open in the Mozilla Firefox 1.0.3 engine.

Unfortunately Netscape 8.0 loses much of Firefox's simplicity and takes up 35MB, more than twice as much hard-drive space.

Download the free browser at <http://browser.netscape.com/ns8>.

## Layer, layer

Rival HD discs boost capacity

Despite the rumours of rapprochement between the two high-definition (HD) disc camps last month, both Blu-ray Disc and HD-DVD manufacturers have been puffing out their chests again with announcements of increased disc capacity.

At first Toshiba seemed to be making up some of the ground between HD-DVD and the higher-capacity Blu-ray Disc. The firm announced it had developed a 45GB HD-DVD, just short of Blu-ray Discs' 50GB.

Toshiba had achieved this by adding another 15GB writable layer, to produce a triple-layer disc.

But just when Toshiba might have been thinking this development could give it extra leverage in its reported negotiations with Sony and Panasonic, TDK dealt the firm something of a body blow.

The media company announced that it had produced a prototype Blu-ray Disc that



could hold a truly gargantuan 100GB of data.

Again, this capacity jump had come from the addition of further layers; TDK's disc now had four layers, holding 25GB each.

According to the Blu-ray Disc Association, a single-layer 25GB disc can typically hold 135 minutes of HD video in Mpeg2 format, or something like 250 hours of standard-definition video.

## Google gets personal with new feeds for home page

Google is now offering users the chance to add a few more features to its characteristically sparse home page. The new service allows you to display features such as Google News and Gmail below the query box on Google.com.

Currently available for preview at Google Labs (take a look at <http://labs.google.com>), the personalised service - which was rolled out as a beta product, much as Google News and Gmail, the company's popular web-based email service, were introduced - allows visitors to the site to include additional information from up to 12 different feeds on their view of the Google home page.

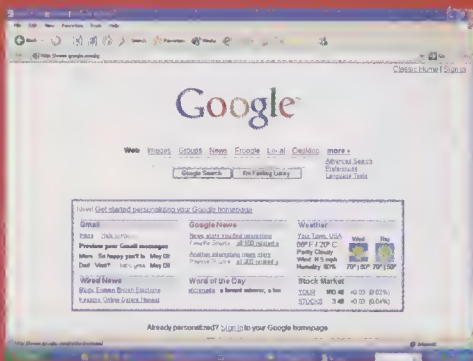
You can include stories from the BBC News and *New York Times* websites, stock quotes, weather information and as many as nine incoming Gmail messages. Anyone who signs up for a free account with Google can set up a page in this way.

The firm has said it will add support for a variety of RSS (really simple syndication) feeds to the personalised service within a couple of months.

The end result, incorporating several different Google services into one spot, closely resembles the portal model adopted by Yahoo.com and Microsoft's MSN.com - a model that Google bosses had previously disdained.

However, the firm has stressed that it has been working on a more personalised web page for several years and did not launch the product until executives were convinced it was the right approach.

Targeted advertising will eventually become part of the home page, a spokesperson said.



## BBC seeks iMP guinea pigs

The BBC is looking for participants to help test its newly developed online content service, Interactive Media Player (iMP).

From September, 5,000 households will be able to download BBC TV and radio content and play it back for up to a week following its broadcast.

After seven days the programme file will expire and you will no longer be able to watch it. Digital rights management software will prevent users emailing the files or sharing them via disk.

The participants will be chosen from the country's seven million broadband-connected households. The BBC is accepting applications at the moment.

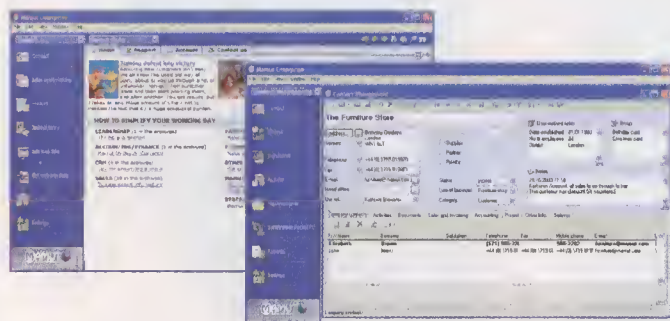
Broadband users who would like to be considered for the scheme should email the BBC at [imptrial@bbc.co.uk](mailto:imptrial@bbc.co.uk), including their name, age and contact details, including address.



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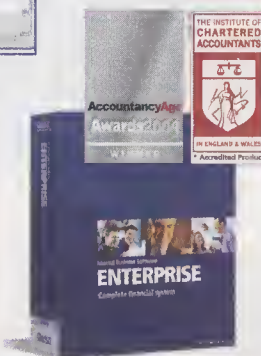
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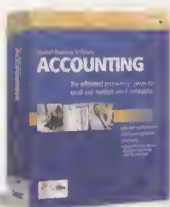
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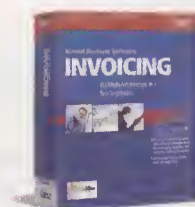


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# CD or not CD?

Bought an audio CD recently? Actually, you probably haven't. Philips is so unhappy with copy-protection methods that it's taken its logo home. Spencer Dalziel reports



Picture the scene. You and a couple of friends – one a senior manager from Philips, the other a major music publisher – pop to the high street to buy a CD. The record you purchase happens to be embedded with the pop impresario's copy-protection technology. Consequently your pal from Philips – which did, after all, invent the format – declares that the shiny round disc you're holding in your hand is not in fact a CD at all. As Magritte might say, "Ceci n'est pas une CD."

According to Philips, a compact disc is not a bona fide CD unless it conforms to the Red Book standards for CDDA (Compact Disc Digital Audio), as set out and defined by the company in 1980. Your putative purchase is actually a CCCD (Copy Controlled Compact Disc).

In an effort to combat piracy, many record publishers now embed copy protection in the CDs they make. Philips states that this technology violates the Red Book standard. The company believes it could be construed as trademark infringement – which is why the long-familiar CD logo isn't found on many recent releases.

## Deliberate mistakes

This attitude is understandable. Copy-protection technology puts deliberate errors on to CDs so they can't be played in a PC drive. In other words, protected discs are inherently defective. As custodian of its own format, Philips doesn't want to be held responsible for the degradation of its product. Jeannet Harpe, senior communications manager at the company, told us: "While Philips welcomes enhancements to CD technology, it is concerned by any additions that impact the playability of these discs. Clearly the Red Book protocol was created to ensure compatibility between discs and hardware."

Gerry Wirtz, general manager of Philips' copyright office, argues that the protection system is simply

a mechanism for stopping the playback of music. In 2002 he claimed that future models of Philips players would both read and burn copy-protected discs. Wind forward to the present day, and this has come to pass.

This year Philips will launch its 2005 Streamium range of products. The flagship Wi-Fi network WACS700 Wireless Audio Center and Station may even be in the shops by the time you read this. It has a 40GB hard drive that can convert up to 750 CDs into MP3 files and is capable of ripping any music CD thanks to a built-in audio drive. Put simply, this means copy-protected CDs can be made into MP3 files. Although the WACS700 doesn't allow you to directly copy the file anywhere else, a savvy user will be able to hook up the Wi-Fi network via their PC, then move the MP3 files from player to computer. Cheeky, isn't it?

## Stop that at once

So is the WACS700 an act of sabotage – a shot across the bows warning record publishers to shape up? Perhaps, but there's no long-term profit in playing hardball with your collaborators. Which is good news for consumers.

The music giant Sony BMG has been intending to copy-protect all of its music for a while, but had been holding out until there was a solution compatible with all playback equipment. Now, in the US at least, it's ready to go. Anti-copy technology produced by the British company First 4 Internet is able to safeguard all of Sony's audio content. And Philips should be happy because the technology doesn't build in errors.

Philips hasn't yet made any public pronouncements on this technology, but we're expecting 2005 to be a year of bridge-building between the big boys in the music industry. Which means you, the consumer, will have an improved understanding of what you're getting when you buy a CD. Watch this space. Or rather listen to it. ☐





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4xUSB2.0, Firewire, VGA, PCMCIA Type II x 1 - 10/100 LAN, v90 56k modem - built-in audio & speakers - 8 cell Li-Ion battery (life up to 3hrs approx) - Built-in card reader (MMS, MS, SD) - Microsoft Works 8.0 - CD/DVD creation software, Video editing and DVD playback software - Antivirus software including 3 months virus updates - 3 year warranty - 1 year on-site, 2 years RTB. Weight - 2.8kg, Dimensions - 355x255x30mm

Voyager A410 T28

- AMD Turion™ 64 Mobile Technology MT-28
- Microsoft® Windows® XP Home Edition
- 512MB DDR RAM, 333MHz
- 60GB, 5400rpm hard drive
- 15.4" WXGA widescreen TFT display (1280x800)
- 128MB ATI Mobility Radeon X700 graphics
- DVD/CD-RW/Dual Layer DVD-RW drive
- Wireless Mini PCI 802.11bg (54Mbps) LAN
- Bluetooth

**£899** inc VAT (£765.11 ex VAT)

Voyager A410 T37

- AMD Turion™ 64 Mobile Technology MT-37
- Microsoft® Windows® XP Home Edition
- 1GB DDR RAM, 333MHz
- 80GB, 5400rpm hard drive
- 15.4" WXGA widescreen TFT display (1280x800)
- 128MB ATI Mobility Radeon X700 graphics
- DVD/CD-RW/Dual Layer DVD-RW drive
- Wireless Mini PCI 802.11bg (54Mbps) LAN
- Bluetooth

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Price does not include delivery which is £19.95 UK mainland only. All systems and upgrades are subject to availability. Prices correct at date of publication. Price and specifications subject to change without notice. Evesham's Terms and Conditions apply and are available on request. Actual products may not match photographic representations. Technical Support opening hours are Monday to Saturday 9:00 to 17:20. On-site warranty applies to UK mainland only. Bundled versions of video cards, sound cards and software are not full retail packs, and the software features on-line documentation. Hard disk capacities are quoted in thousands of millions of bytes and are prior to installation of operating systems and other applications. As part of our staff training some telephone calls may be monitored. AMD, AMD Athlon and AMD Duron are trademarks of Advanced Micro Devices. "NVIDIA" TurboCache™ technology shares the capacity and bandwidth of dedicated video memory and dynamically available system memory for turbocharged performance and larger total graphics memory. Featured systems available until the 31/07/05. E&OE.

For the ultimate notebook experience insist  
on AMD Turion™ 64 Mobile Technology



# Small but perfectly formed

Underestimate the Libretto U100 at your peril. *PC Advisor* took a look at a pre-production version of Toshiba's sub-1kg mini-notebook and was blown away by the power and performance lurking beneath its Lilliputian exterior

**T**oshiba's Libretto U100 weighs less than 1kg, but features big-time performance. This mini-notebook offers maxi-power. We got our hands on a pre-production model of the sub-£1,500 (recommended retail price £1,468 inc VAT) Libretto, and found it to be small in everything except computing muscle.

The U100 features a 7.2in widescreen LCD and an integrated LED backlight. The crisp, bright 1,280x768 resolution screen offers a luscious concentration of colours.

The keyboard, it must be said, is slightly too small, making it somewhat difficult to type, and the minute integrated touch-stick mouse was difficult to manoeuvre. Fortunately, there are two USB ports on the side to add an external mouse. You also get ethernet and modem ports, FireWire, a headphone jack, a fingerprint security pad, 802.11b/g, Bluetooth and a docking port.

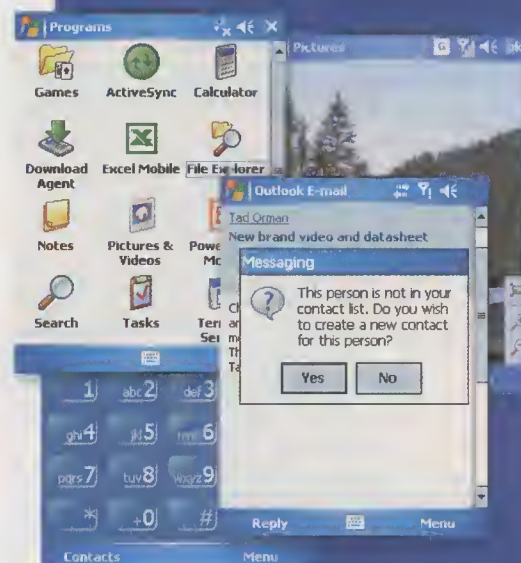
Battery life was around two hours and 20 minutes with a DVD playing, and close to three-and-a-half hours without the disc drive

operating. The 1.2GHz Intel Pentium M Ultra Low Voltage 753 processor and standard 512MB of DRAM provided enough power for looking at photos, surfing the net or using Office apps. The 1.8in hard drive, meanwhile, has a capacity of 60GB.

Unique to the Libretto U100 is the integration of a 3D accelerometer that senses sudden movement in any direction and responds by protecting the hard drive to avoid data loss. However, this isn't always a helpful feature - on our test unit, it was so sensitive that if the desktop surface was uneven, the alarm would trigger.

Overall, it's the tiny size and weight of the Libretto that will attract so-called road warriors who want to travel without being encumbered. Our advice: try out the keyboard and touch-stick before you buy. If you can deal with them, you've got an otherwise worthy and powerful portable PC.

Watch this space for an in-depth review of a finalised version of the U100. ☒



## Microsoft unwraps Windows Mobile 5.0

**M**icrosoft has for years wanted to repeat the success of desktop Windows on the mobile phone. So far, however, it appears to have struggled. Five years since launching its first mobile phone OS, the software giant still finds itself a long way behind market leader Symbian in the smartphone arena.

With May's launch of Windows Mobile 5.0, however, IDC research analyst Geoff Blaber expects all that to change, with an increased share for Microsoft in 2005/2006. Described (by Microsoft) as the most significant Windows mobile phone OS since the first one in April 2000, Windows Mobile 5.0 offers improved reliability and hardware support, plus a host of new features.

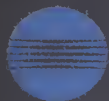
PDAs and smartphones running the new Windows Mobile 5.0 - previously code-named Magneto - are scheduled to come to market over the coming weeks. Enhancements include support for hard disks and persistent storage to retain user data when the battery is depleted.

For entertainment, Microsoft has announced Windows Media Player 10.0 Mobile. The software supports Microsoft's digital rights management technologies, allowing users enjoy on their mobile devices music bought from online stores and TV programs recorded on Media Center PCs.

And for work, there are updates of the mobile versions of Excel and Word, and a new edition of PowerPoint.







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The essentials of imaging

## Don't fall for 'puffery'

We've said it before and we'll say it again: don't believe everything you see in advertisements. And now we have the backing of the Advertising Standards Agency in this, much to the distaste of *PC Advisor* reader David Richardson.

Mr Richardson had written to the ASA in complaint about a *PC World* advertisement he saw in the *Sunday Express*. The full-page advert featured a number of systems at different price points, all adorned with boastful labels such as "Unbeatable power unrivalled performance" and "UK's lowest price TFT PC".

It wasn't the shocking lack of punctuation that annoyed Mr Richardson, but the fact that the claims were, he thought, unfounded. The first one certainly seemed likely to be false, given that one of the other systems featured had a higher spec than the PC the boast was attached to (although at a higher price).

The ASA's position, however, was that this did not constitute a breach of advertising standards because the claims could not be proven one way or the other.

Here Mr Richardson begged to differ with the Agency - and *ConsumerWatch* is inclined to agree with him. For surely a claim that a PC is the cheapest available with a flat-panel monitor should, strictly, be verifiable.

And it should be quite possible to show that the power of a fairly average-spec system might be beaten, and that its performance could easily be rivalled - probably by one of its closest rivals.

However, we do tend to agree with the main thrust of the ASA's argument. "We consider readers are likely to interpret the claims as pieces of advertising 'puffery'," it stated.

That is, it's all quite obviously bunkum and you'd be a fool to believe it. It's worth remembering.

# On the case

Mesh and Samsung are not inspiring tremendous confidence with their customer support setups, while NTL's programme of speed hikes seems to have passed one faithful customer by. Don't worry, we'll sort it



## Help! Another fine Mesh

Last December I bought a notebook from Mesh, and I've regretted it ever since. The product had a fault that meant it powered off at random from the first time I used it. The technical advice I received from Mesh was unhelpful, and the replacement notebook did the same thing. Every time I tried to contact Mesh, using the plethora of phone numbers it provided, it would take me, on average, two mind-numbing days to get through - and even then there would be a good chance I'd be referred to a different number.

The replacement notebook had a different version of XP, with the incorrect Certificate Of Authenticity sticker which I couldn't register with Microsoft. Despite having returned the replacement on 1 March, and despite promises from Mesh, I have not been refunded 13 weeks later.

Tony from Mesh Mobile Support has left messages on my answerphone saying he is chasing up

a credit note and that the refund will be made in a day or so. Needless to say, the refund is never forthcoming.

I originally thought Mesh was just incompetent - but as a result of its endless weasel-ways to avoid refunding me, I am now convinced it is pursuing a plan to keep my money as long as possible. I'm beginning to think I'll have to go to the courts.

*Michael Mosley, via email*



You are not the only reader to have this problem with Mesh recently. We passed your message on and the firm got back to us 18 hours later to say that your refund had been processed that day.

Mesh told us that between 1 March and 30 April, the refund wasn't processed because some items hadn't been returned, and that Mobile Support have chased this up with you. The company went on to say that it made the refund anyway because it "didn't want to have an unsatisfied customer".




### Play it again, Samsung

In 2002 I bought an Athlon XP 1900 RK from Evesham.com. Unfortunately the monitor, a Samsung SM957DF 19in, failed on 15 February this year. I wasn't worried, as it was still within the three-year warranty. I duly contacted Evesham and was referred to Samsung.

Samsung told me that within five days the old one would be picked up, then the new one would be delivered within a further five days. After taking the best part of two weeks off work, I called Samsung to ask what was going on. I was told there had been a delay, and that my type of monitor was not in stock.

I continued to ring Samsung on a daily basis, but was given many different stories. On 8 April I called Evesham in desperation. It swiftly called back to tell me that Samsung had the replacement, and on 15 April, my monitor was finally delivered. Why was it so difficult when my system is still under warranty?  
*Stuart L Beattie, via email*

 Evesham tells us it has an agreement with all of its monitor manufacturers to pass on customer issues such as yours. It tells us that this is in order to get problems dealt with as quickly as possible.

However, you don't have to accept this. If you want your computer supplier to deal with the manufacturer you can ask it to - it has to comply. It may mean you have to wait a little bit longer for it to relay your requests


back and forth, but at least you'll be leveraging the closer working relationship that your supplier has with the other company.

### Hike hitch

In the January issue, published in December, you have a news item under the headline "NTL cranks up its speed but not prices".

"NTL's entry broadband service will be cranked up from 300kbps to 1Mbps, with prices remaining at £17.99 a month," the story reads. "The speed hikes will take place over the first three months of next year."

It is now 25 April, and there is sadly no sign of these improvements.  
*Refer, via email*

 NTL tells us that speed upgrades have taken place for all customers who have requested them, and have gone without a hitch. So if you have asked to be included in the improvements - either over the phone or at <http://www.ntlworld.com> - you should now notice some difference in service. An associate of PC Advisor tells us that he arranged an upgrade over the phone, and it happened immediately.

If you have been upgraded and haven't noticed an improvement, that is a different matter. It could be to do with the times you surf - during peak times any service will be sluggish. Try logging on in the morning if you can.

NTL won't tell us what the average download speed is for its services. You can check your speed at [www.adslguide.org.uk/tools/speedtest.asp](http://www.adslguide.org.uk/tools/speedtest.asp).

## Top tips for safer buying

### • Use a credit card

Transactions over £100 are automatically insured by your credit card company, so you'll be able to claim your money back if anything goes wrong.

### • Ask for the review machine

If you are buying a system featured in *PC Advisor*, mention the magazine and page number to the salesperson, then you can be sure of getting what you want.

### • Will the system do what you need it to?

If you have been told that it will perform in a certain way, you have grounds for complaint if it turns out not to.

### • Get an order acknowledgement

So you know where you are, get a full specification and record of the deal. This should be delivered anyway but make sure.

### • Keep a record of all communications

It's best to save emails and letters that pass between you and the supplier, so you can refer back to everything should you need to. It's also a good idea to make notes about any phone conversations you have, just in case.

### • Check delivery fees and terms

Don't get caught out by stealth charges.

### • Ask about technical support

How much help will you get if things go wrong? You should also ask about warranty - is it onsite or return-to-base? If it's the latter, be clear about who pays for the transportation.

• **Call the helpline** Ask what the helpline call charges are. Also, try calling it a few times to see how promptly it's answered.

### • Check goods on arrival

Make sure that box contains what it should. For goods bought over the phone or the internet you have a seven-day cooling-off period during which you can reject the goods (so long as they aren't bespoke). Use that opportunity.



Got a problem with a vendor or manufacturer? Unsure of your consumer rights? Want to find out more about a company's reputation? Our forum angels are always on hand to offer advice.

Log on to the ConsumerWatch forum and share your experiences [www.pcadvisor.co.uk/consumerwatch](http://www.pcadvisor.co.uk/consumerwatch)

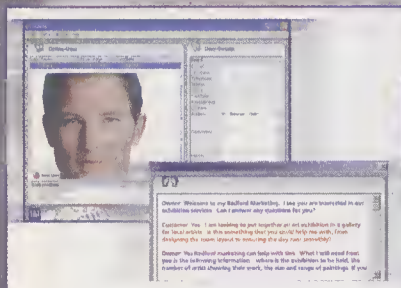
### Personal data privacy campaign

Have you ever been sold a PC that had someone else's information on? Or has a system you returned been resold without being properly wiped? Email us at [pcadvisor\\_consumerwatch@idg.com](mailto:pcadvisor_consumerwatch@idg.com) and we'll take it from there.

# Small businesses helped make Find out why – test drive 1&1

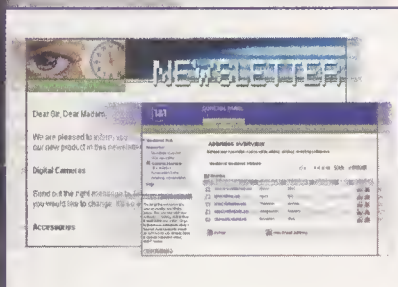
"I'm not a professional web designer, but with 1&1's site building tools I was able to create our company website without any prior experience. I couldn't believe how simple it was to create my own high-impact web presence!"

Craig Radford  
[www.radfordmarketing.co.uk](http://www.radfordmarketing.co.uk)



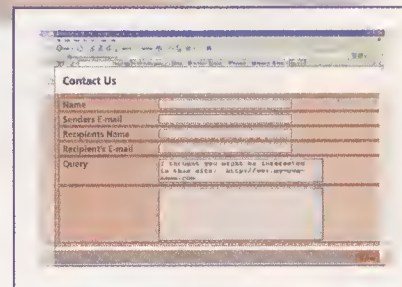
## In2Site Live Dialogue

The closest thing to selling one-to-one, live and in person, with auditory alerts and dialogue in real time. Offers site visitors a live consultant, at their discretion.



## Newsletter Tool

Share your news and important information via e-mail and newsletters. Track your newsletter's performance and store previously published newsletters.



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## It's easy!

"The free Trial gave us the opportunity to test 1&1's web hosting package capabilities. 1&1's package gave us ample web space, a large 1 GB mailbox and lots of included features – everything we needed really. We will definitely be staying with 1&1!"

Peter Clark, Owner  
[www.pottery-house.co.uk](http://www.pottery-house.co.uk)



## It works!

"1&1 includes these great marketing tools that help me communicate better with my students. I can also see when someone comes to my site and converse with them right then and there! I can easily collect and manage my students data, and send e-mail newsletters announcing special offers."

Jemma Moat, Music Teacher  
[www.studymusic.co.uk](http://www.studymusic.co.uk)



## It's free!

"When I heard about 1&1's test drive promotion, I decided to give web hosting a try. Turned out, a website was exactly what my business needed. I am able to attract new customers and interact with them live on-line."

Gary Hughes, Solicitor  
[www.watsonandhughes.co.uk](http://www.watsonandhughes.co.uk)



### Test Drive the 1&1 SME Package:

(Includes web hosting, website building tools, e-mail, spam filtering, virus scanning and much more)

- ✓ 6 Month FREE Trial
- ✓ 1 Domain name included
- ✓ Fully-inclusive package
- ✓ No credit card needed

If you're ready to move your business online, but thought it would be too difficult or expensive – 1&1 has the perfect solution. 1&1 hosting products are fully-inclusive and business-ready, so you won't have to purchase any additional items... even your website only takes a few minutes with 1&1's included tools! 1&1 Business packages start at only £8.99 per month, allowing you to take your business online without breaking the bank.

And now, for a limited time only you can go online with 1&1's no obligation trial. With the 1&1 SME package you'll get a 6-month FREE test drive, with all the features and power of 1&1's most popular Business package. Without the need to hand over any credit card details, you can join millions of small businesses who have found success by going online with 1&1. A free trial for your business is just a few clicks away, but hurry... the offer ends June 30, 2005.

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or visit us now [www.1and1.co.uk](http://www.1and1.co.uk)

# Website makeover

Moving up from a basic web-design package to a more advanced one can be daunting. Peter Thomas takes over an embryonic Dreamweaver website, demonstrating how to get to grips with its powerful tools and create professional-looking, template-based pages



Keith and Joan

Long-time *PC Advisor* web forum member Peter Jackson jumped at the chance when his friends Keith and Joan Hannant asked if he fancied designing a website to promote their Yorkshire holiday home. Peter initially used

Microsoft Publisher to design

the site, and made a pretty good job of it – but a couple of visits to our web design forum made him realise that

Publisher isn't ideal. It doesn't create sites that will stand up to a great deal of scrutiny when it comes to clean HTML code and compliance with current design standards.

Not one to be daunted by initial setbacks, Peter decided to use Macromedia Dreamweaver for his next attempt. You can see the results in the pictures. Although better than the Publisher version, the Dreamweaver-based site was in need of a makeover, which was where we stepped in.

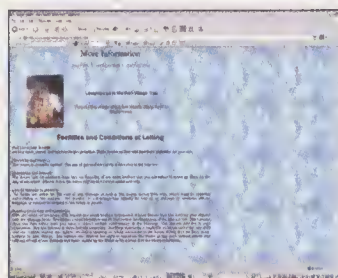
Dreamweaver has acquired a considerable reputation over the years, and is a program no self-respecting web designer would be without. It can handle pretty much

## BACKGROUND

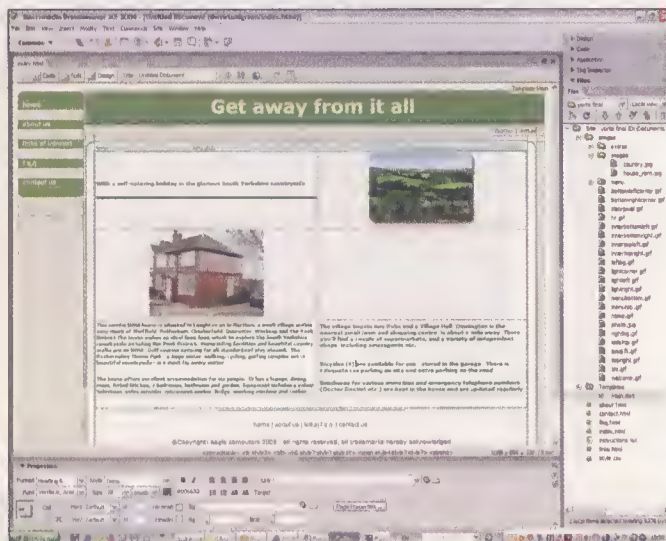


**BEFORE** Peter had used a blue, cloud-effect background, which was distracting. Fancy coloured backgrounds tend to dominate, and can make it difficult for people with accessibility problems. Plain white is a safe option – text and images look clean and colourful

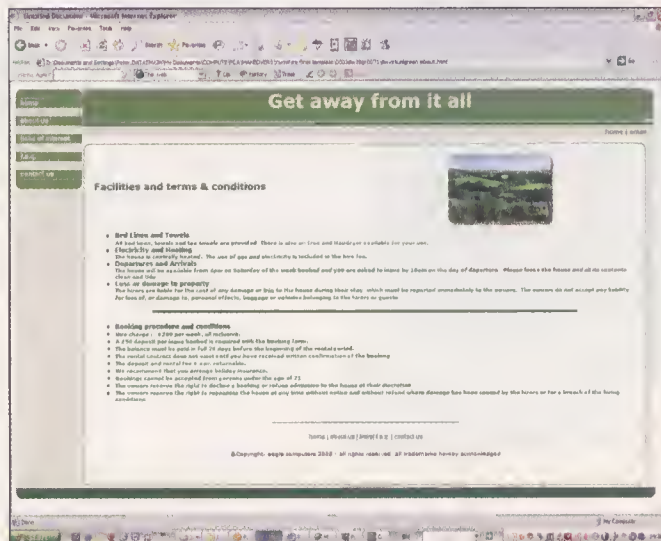
## TEXT COLOUR



**BEFORE** Black text looks stark and formal – the layout fails to capture the visitor's interest. This question of text colour leads to much debate among designers. Avoid low-contrast text/background combinations and you'll be safe



**AFTER** I opted for a plain white background with green graphics and a countryside image. This gives a much cleaner, 'country' feel



**AFTER** Green text gives a softer, less formal look. A more open layout allows the reader's eye to rest and take in the overall look of the page



anything that's thrown at it, but we wouldn't normally recommend it to someone who is trying their hand at web publishing for the first time, because the learning curve can be pretty steep. Dreamweaver is also expensive: £339 for the latest version as a download, plus £12 for a backup copy on CD.

Having said that, it's very powerful – and if you're serious about web design and have the time to delve into its complexities and capabilities, you'll be richly rewarded. Importantly, Dreamweaver supports technologies including XHTML and XML, PHP, ASP.NET and JSP development.

## Selling a service

Many people have problems when it comes to selling on the web. It's one thing to design a well-coded site that complies with all the written and unwritten rules, but quite another when it comes to shifting goods and/or services. That's when some plain old-fashioned marketing techniques come in handy.

Remember that not everyone knows where you are – make sure your site contains clear information about your location. The internet is a truly global resource and your site may be visited by people from pretty much any country on the planet. Tell them where your business is and let them decide whether or not they'll buy from you. Provide a full postal address if you're intending to sell goods online – it's a requirement under UK distance selling regulations.

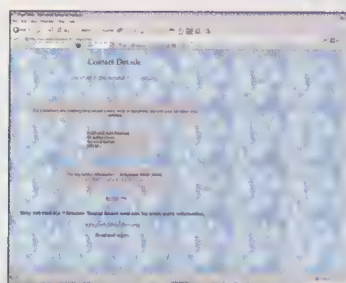
Don't assume your customers know anything about your products – describe them clearly and accurately. UK consumer law allows a customer to demand a refund if the seller has described something wrongly on a website.

### MAPS

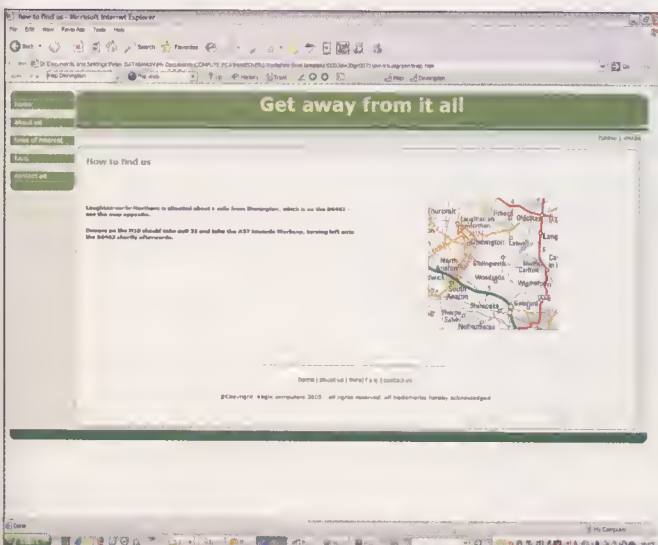


**BEFORE** The map was indistinct and there were no textual aids

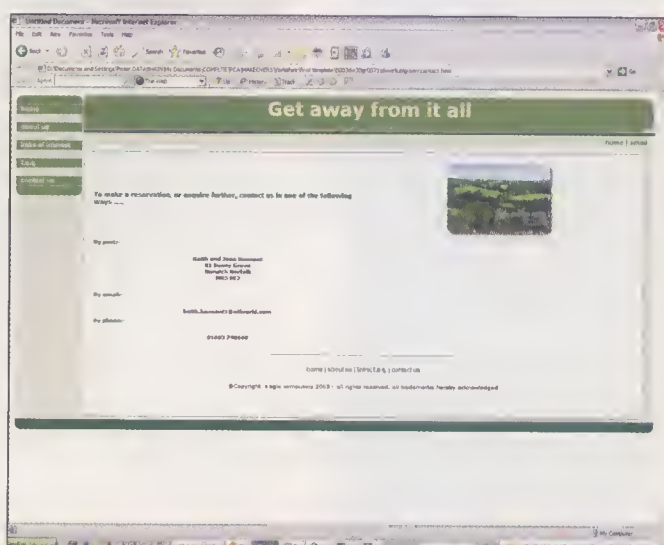
### SETTING STYLES



**BEFORE** The contact page contained email hyperlinks. This can lead to spam and is to be avoided. Create the email address in plain text, or as a graphic instead



**AFTER** A brighter map is helped by text instructions. Ensure the maps you use are copyright-free and stick to basic instructions



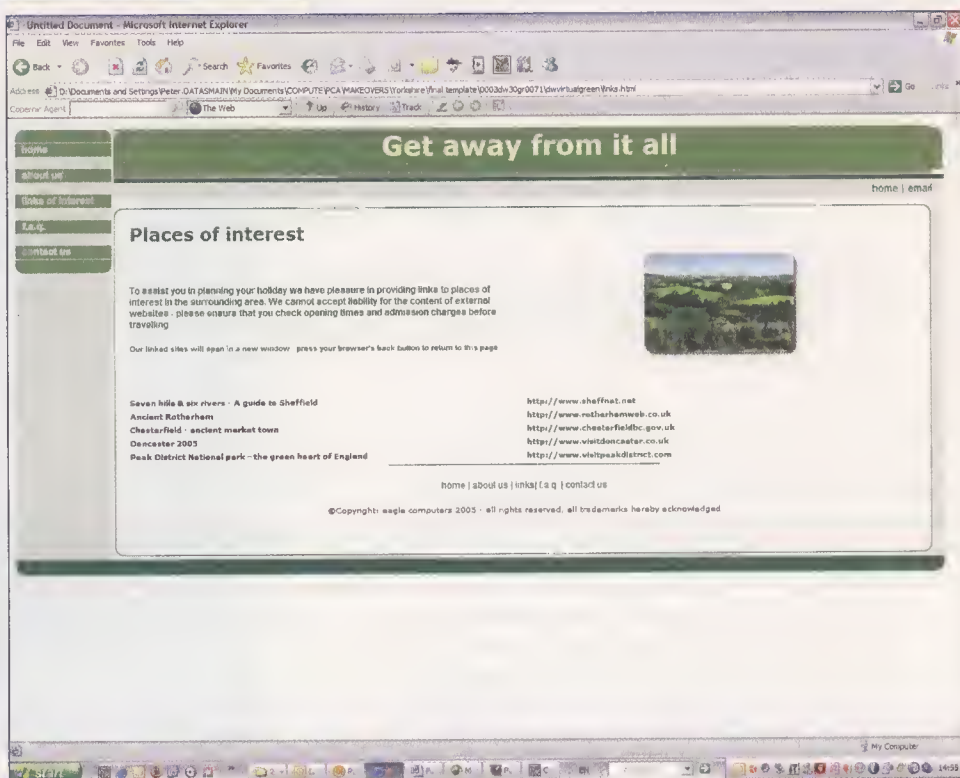
**AFTER** No hyperlinks, just a clearly-worded information page. Include an international dialling prefix if you expect overseas customers

## Dream on

Don't lose any sleep over Dreamweaver by using these tips. For more help try the web design forums at [www.pcadvisor.co.uk](http://www.pcadvisor.co.uk).

- **Make sure there are no dead links** before uploading your site. Do this by going to your site map, right-clicking on any of the files and then clicking on 'check links' - you can choose to cover the entire site or just a selected file or folder. Fix any dead links you discover by using the folder icon and browsing to select the right files.
- **Add spaces between items** in a bulleted list. Place your cursor at the end of the item and press Shift+Enter twice (this adds two <BR> tags after the list item instead of another <LI> tag).
- **Upload and download files** using Dreamweaver's 'get' and 'put' arrows. It's tempting to drag and drop pages, but it's far too easy to drag a page to the wrong folder and overwrite the wrong page. Dreamweaver will watch your directory structure and put your page in the right folder.
- **Use brief, informative names** for pages, such as `homecoming.html` (rather than, say, `homecmng_new1.html`). A page's name and the folder it's in will show in its public web address.
- **When working with templates** you often need to have areas that vary from page to page. These are called editable regions, and they're easy to create. Place your cursor in the template where you need the editable region, then go to Insert, Template objects, New Editable region. Give the region a name. Click ok. You will find the name of the editable region and the place to write the content where you made the insert.

### LINKS



Dreamweaver provides tools for built-in graphics editing while CSS (cascading style sheets) ensure your site's pages have that uniform, polished look. You can download a free 30-day trial version of the software from [www.macromedia.com](http://www.macromedia.com) or you can load it up from our cover disc.

### Template techniques

Peter's site has a fairly simple job to do. His friends Keith and Joan want to let their house on a self-catering basis, so their website must showcase the property and its location: the beautiful countryside of South Yorkshire. We decided to use a template for the new site, thus ensuring each page has an identical layout and set of graphics. Dreamweaver makes it easy to create new pages based on the template and changes to the template are reflected throughout the site - an absolute blessing when you have a large and complex site structure.

You can change the look of an entire site simply by making changes on the template file - either in design or code mode. Using CSS will mean Peter can make rapid, site-wide changes to font sizes and colours in the future. The idea was to provide a simple, easily editable site that would be eye-catching and easy to navigate.

A clean layout and neat navigation, and using a lot of white space for your site, enhances its look and means visitors will be able to focus on the page content. Templates make it easy to achieve all this. Since, in essence, each page is the same design and only the content varies, the words automatically become the focus for anyone who lands at the site.

### The verdict

Peter Jackson pronounced himself delighted with the makeover. "Your aim of a fresh, simple country look has certainly worked," he said. His friends Keith and Joan were equally pleased, and look forward to adding content to their site, now that they've seen what can be done. ☑

**AFTER** Because prospective customers may not know the South Yorkshire area, I decided to include a links page. Peter can use this in future to add links to local places of interest, or to highlight useful resources - businesses that supply hiking clothes, for instance



Register free for the forum at  
[www.pcadvisor.co.uk](http://www.pcadvisor.co.uk)





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# New products



## SONY RDR-HX510 HDD/DVD recorder

As we predicted, the price of combined DVD and HDD (hard disk drive) recorders has rapidly come down - it wasn't that long ago that DVD players cost £300. The RDR-HX510 has an 80GB hard drive, giving you 134 hours of recording time at a reasonable quality setting. And if you want to archive what you've recorded you can transfer footage to DVD. The RDR-HX510 will even write to dual-layer media.

- Sony: 020 7365 2947
- [www.sony.co.uk](http://www.sony.co.uk)
- £299 inc VAT

## PLEXTOR PX-740A Dual-layer DVD recorder

This internal DVD writer is compatible with DVD+R DL and DVD-R DL formats and, what's more, it writes to the former at eight-speed and the latter at quad-speed. Plextor claims the PX-740A will fill up a dual-layer disc in less than 15 minutes, and a DVD+R or DVD-R in six minutes. In essence, the PX-740A is a stripped-down version of the PX-716A and the price tag looks reasonable for the performance it offers.

- Misco.co.uk: 0800 038 8880
- [www.plextor.be](http://www.plextor.be)
- £65 inc VAT



## VIEWSONIC N2750W Widescreen LCD TV

The N2750W has a native resolution of 1,280x720 and a 16:9 aspect ratio. More importantly, it is compatible with HDTV (high-definition television) and, with a 27in widescreen this LCD TV should fit nicely into most living rooms, especially as it is less than 10cm deep. If you're still not convinced, there's a picture-in-picture function and split-screen mode so you can keep your eye on two channels at once.

- ViewSonic: 01293 643 900
- [www.viewsonic.com](http://www.viewsonic.com)
- £699 inc VAT



June 2005

Acer, like Ferrari, is the technology driver of tomorrow. Both produce desirable, eye-catching and devastatingly fast products that embody the passion, spirit and experience of years leading the competition. The magnificent carbon fibre casing of the **Ferrari 4000** conceals the very latest AMD 64-bit technology, full wireless connectivity and widescreen monitor. Powerful, dark and purposeful, the **Ferrari 4000** has the presence of a true champion.



# NEW Ferrari 4000 NOTEBOOK TECHNOLOGY DRIVER

- AMD Turion™ 64 Mobile Technology ML-37
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Professional or
  - Microsoft® Windows® XP Home Edition
- 1GB DDR333 SDRAM
- 100GB hard drive, 5400RPM
- Integrated DVD-Super Multi double-layer drive
- 5-in-1 card reader for optional MultiMediaCard™, Secure Digital card, Memory Stick®, Memory Stick PRO™ or xD-Picture Card™
- 15.4" WSXGA+ (1680 x 1050) TFT display
- ATI MOBILITY™ RADEON® X700 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem
- 1 Year Carry In (International coverage - ITW)

**Ferrari**

OFFICIAL LICENSED PRODUCT



**Ferrari 4005WLMi XP Home**

**£ 1,299** INC VAT  
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AcerAdvantage New Edition warranty upgrade to 3 years  
pick up & delivery including accidental damage insurance

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ADVANTAGE

**£ 116** INC VAT  
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www.acer.co.uk

¹ is enabled by Microsoft® Windows® XP SP2

Pictures are intended simply to illustrate the product.

# Acer Projectors - The Future of Digital Imaging

## PH110

Acer PH110  
16:9 Widescreen Projector

£ 6 99 INC VAT  
£ 5 95 EX VAT

1100 Ansi lumen (880 in ECO), 2000:1 contrast, 30db noise, 2.3Kg, 2000 hrs lamp life (3000 in ECO), Keystone correction, Inbuilt speaker



## PD523

Acer PD523  
The freedom of mobile power

£ 999 INC VAT  
£ 850 EX VAT

DLP, XGA (1024 x 768) resolution, 2400 Ansi lumen (1700 in ECO mode), 2000:1 contrast, 31db noise (27Db in ECO mode), 2.4Kg, 2000 hrs lamp life (3000 hrs in ECO mode), S-Video and Composite inputs, Keystone correction, Inbuilt speaker



## Acer Digital Cameras

Capturing your  
Digital Life



Acer CR8530

8 Megapixel

£ 229 INC VAT  
£ 194.89 EX VAT

8MP, 1.8" CCD sensor, 3x optical zoom, 4x digital zoom, 2.5" LCD TFT, 64Mb 5D Card inc., Video recording 320 x 240@ 15fps, Battery support 140 photos, Rechargeable lithium battery, Max resolution 3264 x 2488, ViewFinder

5 Megapixel

Acer CS5531

£ 169 INC VAT  
£ 143.83 EX VAT

5MP Compact, 3x Optical Zoom & 4x Digital Zoom, 16MB Internal Memory 64Mb 5D Card included, Pictbridge compatible, 2.5" LCD, 100 Photo Battery Support, Movie Recording Function, 8 Scene programmes



New



## Acer Aspire T140



- AMD Athlon™ 64 Processor 3400+
  - Cool'n'Quiet™ Technology
  - Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Media Center 2005
- 1024MB DDR SDRAM
- 200GB ATA-100 HDD
- Audio O/B
- DVD-RW+
- 56K Modem / LAN
- nVidia G6600 256MB PCI Express
- Microsoft® Works
- Speakers
- 9 in 1 Memory Reader
- 1 Year collect and return



## Media Center PC

Acer Aspire T140 brings the digital world to your home. The Acer Aspire T140 uses the latest powerful AMD Athlon 64 processor, giving you access to the most common peripheral connections, support to read a large amount of memory cards and an attractive set of tools. Acer Aspire T140 will become the centre of your digital world.



### Acer Aspire T140 (PC Only)

£ **699** INC VAT

£ 594.89<sup>EX</sup> VAT

AMD Athlon™ 64 Processor 3400+  
Microsoft® Windows® XP Media Center 2005  
200GB 7200RPM, 1024MB DDR, DVD-RW,  
nVidia G6600 256MB PCI Express, Microsoft® Works,  
Speakers, Modem, 9-in-1 Card Reader

¹ is enabled by Microsoft® Windows® XP SP2

## Acer Networking

Acer Bluetooth USB Dongle - class I, 100 metre coverage, Bluetooth version 1.1, supports common application profiles, Win9SE/ ME/ 2000/ XP

£ **24** INC VAT  
£ 20<sup>EX</sup> VAT



Wireless Broadband Router Kit with Built In Access Point (IEEE 802.11G Turbo, up to 108Mbit/s, up to 50m radius, WEP 64/128, WPA), 4x 10/100 Mbit's Switch Ports, Firewall Protection. Includes PCMCIA Card

From £ **59** INC VAT  
From £ 50<sup>EX</sup> VAT



Pricing Effective From 23rd June to 15th July 2005

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Pictures are intended simply to illustrate the product. is enabled by Microsoft® Windows® XP SP2

## Acer Aspire T120E

### Your Digital World

Acer Aspire T120E brings the digital world to your home, all integrated into an elegant PC. The Acer Aspire T120E includes support to read a large amount of memory cards, a powerful processor and an attractive set of tools, while giving you easy access to the most common peripheral connections. Acer Aspire T120E will become the centre of your digital world.

- AMD Sempron™ Processor
- Microsoft® Windows® XP Home Edition
- Microsoft® Works®
- 256MB DDR SDRAM
- 40GB PATA Hard Disk drive
- VGA O/B
- DVD-RW+
- 56K Modem / LAN
- 9 in 1 Memory Card Reader
- Audio O/B
- Speakers
- 1 Year collect and return



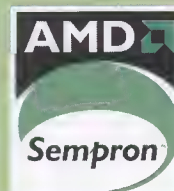
Acer Aspire T120E (PC Only)

Price Down

£329 INC VAT

£280EX VAT

AMD Sempron™ Processor 2800  
Microsoft® Windows® XP Home Edition  
80GB 5400RPM, 256MB DDR, DVD-RW, VGA on board, Microsoft® Works,  
Speakers, Modem, 9 in 1 Card Reader



## Acer LCD Monitors An Exceptional Point of View

### Gamers Line AL 1951m - TFT LCD 19" Executive Class

- 19" Multimedia TFT LCD • TCO '99
- Resolution 1280 x 1024
- Brightness 420 cd/m²
- Contrast Ratio 700:1
- Viewing Angle 170°
- Response rate 8 ms
- Digital and Analogue
- ISO 13406-2
- Speakers
- Black/Silver Design
- Slim Format



Acer AL1951m

£279 INC VAT  
£237EX VAT



### Prestige Line AL 2032wm - TFT LCD 20" Digital Lifestyle

- 20" Widescreen
- Multimedia TFT
- Resolution 1680x1050
- Viewing Angle 176°
- Brightness 300 cd/m²
- Contrast Ratio 600:1
- Response time 16ms
- Digital (DVI-D), Analogue, S-Video, Composite
- Black/Chrome Design
- ISO 13406-2
- SW Speakers, Slim Format

Acer AL2032wm

£499 INC VAT  
£425EX VAT

### Office Line AL 1722hs - TFT LCD 17" A Professional View

- 17" Multimedia TFT LCD
- Resolution 1280 x 1024
- Viewing Angle 140°
- Brightness 300 cd/m²
- Contrast Ratio 700:1
- Response time 8ms
- TCO '03
- Digital and Analogue
- ISO 13406-2
- Speakers
- Height adjust
- Portrait/Landscape Pivot

Acer AL1722hs

£199 INC VAT  
£169.36EX VAT





# Acer Aspire 5010

## Widen your Multimedia World



The Acer Aspire 5010 notebook, with Mobile AMD Athlon™ 64 processors and HyperTransport™ technology, provide SoHo business professionals and private users, the perfect balance between performance, weight, extended battery life, and enhanced security. With a choice of a 15" display or 15.4" CrystalBrite wide screen and a full range of multimedia and wireless connectivity features, the Acer Aspire 5010 offers strength and stability.

- Mobile AMD Athlon™ 64 Processor
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Home Edition
- ATI Mobility™ Radeon® X700 with 64MB or 128MB
- 15.4" WXGA Acer CrystalBrite
- 512MB (2x 256MB) DDR-RAM
- 40/60/80GB ATA/100 Hard Disk drive
- DVD/CD-RW Combo or DVD Dual
- Connectivity: 10/100 Ethernet wired or 80211g wireless LAN, 56K Modem
- 3x USB 2.0 Ports
- 1 Year Carry In (International coverage - ITW)

### Acer Aspire 5012WLMi

£ **749** INC VAT  
£ 637 EX VAT

Mobile AMD Athlon™ 64 Processor 3000+  
Microsoft® Windows® XP Home Edition  
15.4" WXGA CrystalBrite, 64MB ATI X700, 512MB (2x 256), 80GB,  
OVO Dual double layer, Lilon, Ethernet & wireless 802.11 g,  
5-in-1 card reader

### Acer Aspire 5014WLMi

£ **799** INC VAT  
£ 680 EX VAT

Mobile AMD Athlon™ 64 Processor 3400+  
Microsoft® Windows® XP Home Edition  
15.4" WXGA CrystalBrite, 128MB ATI X700, 512MB (2x 256), 80GB,  
DVD-Dual double layer, Lilon, Ethernet & wireless 802.11 g,  
5-in-1 card reader



## Acer PDA n35 - Fingertip Technology

### Acer n35

#### Acer n35 GPS Bundle

£ **269** INC VAT  
£ 229 EX VAT

Samsung Processor at 266MHz, 64MB SDRAM,  
32MB NAND Flash Memory, SD(SDIO)/MMC Slot,  
3.5" transfective TFT, 256MB SD Card,  
Destinator 3 Software, Microsoft® Windows®  
Pocket PC 2003 Premium,  
Integrated GPS receiver



USB Sync Cable (SV, 3A)  
(compatible with n30, n35, n50)

£ **15** INC VAT  
£ 13 EX VAT

Fitted Leather Cover - Black

£ **24** INC VAT  
£ 20 EX VAT



Car Charger  
(compatible with N30/N35/N50)

£ **15** INC VAT  
£ 13 EX VAT



Pricing Effective From 23rd June to 15th July 2005



# Acer Aspire 5020

## The leading edge of 64-Bit mobility



The Acer Aspire 5020 offers a stylish way for SoHo professionals and small business users to access versatile processing power and stunning video performance. Featuring the all-new AMD Turion™ 64 Mobile Technology with HyperTransport™ technology, a 15.4" CrystalBrite wide screen and seamless wired and 802.11g Wi-Fi CERTIFIED™ wireless network integration, the Aspire 5020 was built for dynamic multimedia at work and at home.

- AMD Turion™ 64 Mobile Technology
- AMD PowerNow!™ Technology
- HyperTransport™ Technology
- Enhanced Virus Protection Technology\*
- Microsoft® Windows® XP Home Edition
- 15.4" WXGA Acer CrystalBrite
- ATI Mobility™ Radeon® X700 with 128MB
- 56K Modem, 10/100/1000 LAN, WLAN 802.11g
- 3x USB 2.0, S-Video, Firewire, Infrared, 1x Type II
- 6-in-1 Card Reader
- 1 Year Carry In (International coverage - ITW)

### Acer Aspire 5021WLMi

£799 INC VAT

£ 680 EX VAT

AMD Turion™ 64 ML-28 Processor  
Microsoft® Windows® XP Home Edition  
15.4" WXGA Acer CrystalBrite, 128MB ATI X700, 512MB (2x 256),  
100GB, DVD-Dual double layer, Licon, Gigabit Ethernet &  
wireless 802.11g, 6-in-1 card reader, Acer GridVista, Acer Arcade

### Acer Aspire 5024WLMi

£949 INC VAT

£ 808 EX VAT

AMD Turion™ 64 ML-34 Processor  
Microsoft® Windows® XP Home Edition  
15.4" WXGA Acer CrystalBrite, 128MB ATI X700, 1024MB,  
100GB, DVD-Dual double layer, Gigabit Ethernet & wireless 802.11g,  
6-in-1 card reader, Acer GridVista, Acer Arcade



## Acer Notebook Options

### Acer Battery Packs

£ 99 INC VAT

£ 85 EX VAT



### Acer Carry case

From £ 15 INC VAT

From £ 12 EX VAT



### Additional AC Adapters

£ 35 INC VAT

£ 30 EX VAT



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**Scotland:** Comcal (Scotland) Ltd Glasgow 0141 332 5147 billy@comcal.net • EComputers Perth 01738 446655 justin@ecperth.com • Ideal Computing Edinburgh 0871 7000 150 sales@ideal-computing.co.uk sales@ideal-computing.co.uk • Moray Business & Computer Centre Moray 01343 552000 sales@moray-business.co.uk • User Friendly Computing Borders 01896 759595 sales@userfriendlyttd.co.uk

**East Anglia:** Antechs Ltd - 2 branches St Neots 01480 403721 sales@antechs.net • Tandem 5 shops in East Anglia and Cambs, 0845 125 9490 darren.bush@tandemsoftware.co.uk • Total Computing Ltd Huntingdon 01480 457006

**Wales:** Aztec Ltd Newport 01633 213122 • Axis Computing Ltd Swansea 01792 411088 info@axis.co.uk • Oinas Computer Services Cardiff 029 2023 1445 iain@dinasc.computers.co.uk • Gaia Technology Bangor 01248 352459 jphnb@gaia-tech.com

**Northern Ireland:** Computer Warehouse Ballymena 02825 652255 info@computerwarehouse.co.uk • Computer World Armagh 028 375 10002 sales@computerworlds.co.uk

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\* Denotes dependant upon configuration

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Offering Effective From 23rd June to 15th July 2005





### TOSHIBA TECRA M4 Tablet PC

Well, well, well. If it isn't our old friend the tablet PC again. We've nothing against the principle, and realise that for certain sectors such as education and healthcare the tablet has its uses. It just doesn't seem destined to make an impact in the consumer market. This particular one uses a Pentium M processor and has built-in wireless and Bluetooth capabilities and a 14in display with a resolution of 1,400x1,050.

- Toshiba: 01932 841 600
- [www.toshiba.co.uk](http://www.toshiba.co.uk)
- £1,585 inc VAT

### TRANSCEND T.SONIC PHOTO MP3 player and photo viewer

Most devices on the market that double up as MP3 players and photo viewers are HDD (hard disk drive) based. Not the T.sonic Photo, however; it uses flash memory instead. There's a 2in LCD display for viewing your snaps, but only 512MB of memory to store them on. If you want to fit a bit of music on as well then you'll find it filling up in no time. The integrated FM tuner still doesn't seem to justify the high price tag.

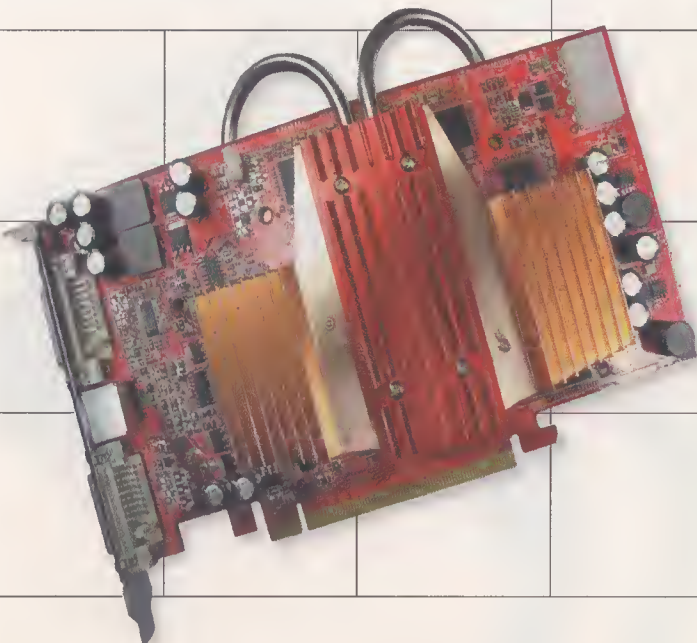
- Hypertec: 01488 686 844
- [www.transcend.nl](http://www.transcend.nl)
- £179 inc VAT



### INFO-TEK GECUBE RADEON X800XL 512MB HEAT PIPE Graphics card

Saddled with a name that doesn't exactly trip off the tongue, the GeCube Radeon X800XL 512MB Heat Pipe from the Info-Tek Corporation employs a dual-sided heatsink design for noise-free operation. Just how quiet it is we can't be sure, because we've not tested it - but we'd certainly like to. With 512MB of dedicated RAM and the ATI R430XL graphics chip, the performance ought to be stunning.

- [www.ebuyer.com](http://www.ebuyer.com)
- £284 inc VAT



### EPSON PICTUREMATE 500

#### Photo printer

We tested the original PictureMate from Epson back in September last year, and were impressed by the results - at least in terms of the vibrancy of the colours. The 500 promises to be faster than its predecessor, and it also has a 2.4in LCD screen to help you add effects to your pictures without using a PC. Epson reckons each photograph costs just 29p to print, so it's relatively economical, too.

➤ Epson: 0800 220 546

➤ [www.epson.co.uk](http://www.epson.co.uk)

➤ £179 inc VAT



### QTEK 2020I

#### Sim-free smartphone

The Qtek 2020I has a 520MHz Bulverde processor and uses Microsoft's Pocket PC Smartphone Edition operating system. What's unusual about the Qtek is that it is available to buy sim-free, and while this means you might pay a bit more, you will be able to keep your existing sim card and number. It's compatible with 802.11b wireless networks and has Bluetooth facilities as well, so you can connect up with a headset and use it in your car.

➤ Smart Devices: 08700 272 127

➤ [www.smartdevicesdirect.com](http://www.smartdevicesdirect.com)

➤ £434 inc VAT

### TRUST NB-7300P

#### Wi-Fi hotspot finder

Hotspots aren't always clearly signed. This means finding a wireless network can be a nightmare - you have to get out your notebook and boot up just so you can tell if there's a signal or not. This handy little device from Trust should put a stop to all that. You can simply press a button and check the five indicator LEDs, which tell you whether there's a network available and how strong the signal is.

➤ Trust: 0845 609 0036

➤ [www.trust.com](http://www.trust.com)

➤ £20 inc VAT







### **PALMONE LIFEDRIVE** PDA

We might call this a PDA but PalmOne avoids describing it as such in its press materials, curiously enough. It refers to it as a 'mobile manager', whatever that means. In any case, it has a 4GB hard drive for you to store and access your files on, built-in Wi-Fi and Bluetooth for hooking up to wireless networks and connecting to other devices.

- PalmOne: 0845 090 0265
- [www.palmone.com/uk](http://www.palmone.com/uk)
- £329 inc VAT

### **WESTERN DIGITAL EXTREME LIGHTED COMBO DRIVE** External hard drive

At the time of going to press we still didn't have a confirmed UK price for this 320GB external hard drive, but we do know it retails for \$299 in the US. There's a choice of colours and you can see the components inside the case, so presumably you can see the disc spinning, too. It'll connect to your PC or notebook via USB 2.0 or FireWire and it has an 8MB cache.

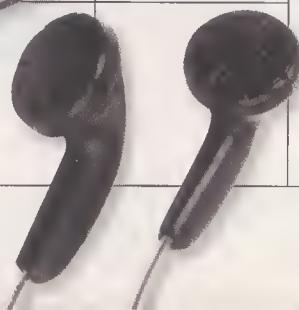
- PC World: 0870 242 0444
- [www.westerndigital.com](http://www.westerndigital.com)
- ETBC



### **PACKARD BELL AUDIODREAM COLOUR** MP3 player

The AudioDream Colour from Packard Bell comes in two versions: 512MB and 1GB, which can hold around 150 and 300 of your MP3s respectively. It doubles as a dictaphone (32 or 64 hours of audio can be recorded), and you can store digital photos and view them on the AudioDream's 1in screen. It measures 68x38x12mm.

- PC World: 0870 242 0444
- [www.packardbell.co.uk](http://www.packardbell.co.uk)
- £99 inc VAT for 512MB; £129 inc VAT for 1GB





### HP PSC 1610 All-in-one device

For under £100 you can pick up the PSC 1610 from HP. It has a built-in memory card slot and is PictBridge-compatible, so you can print your photographs directly, without using a PC. It'll print 23ppm (pages per minute) of text and 18ppm of colour, according to HP, but it's probably a good idea to take these statistics with a pinch of salt. As a 48bit colour scanner it has a resolution of 1,200x4,800dpi.

- HP: 0845 270 4215
- [www.hp.com/uk](http://www.hp.com/uk)
- £99 inc VAT

### SANYO S750i Smartphone

The revamped version of the Sanyo S750, the S750i has a 2.4in colour screen and a 1.3MP digital camera, just like its predecessor. There are no Wi-Fi facilities, but there's built-in Bluetooth for connecting to other devices and headsets. Other than the redesign, it doesn't seem too much different to the S750.

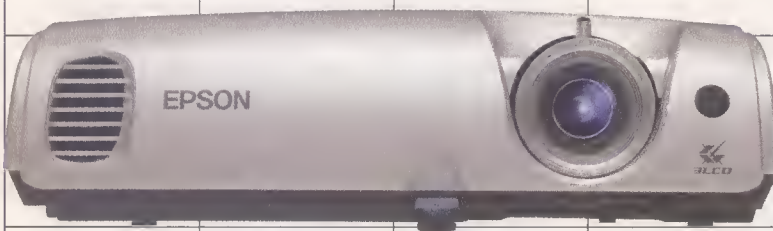
- Sanyo: 01923 246 363
- [www.sanyo-mobile.co.uk](http://www.sanyo-mobile.co.uk)
- Price dependent on contract



### EPSON EMP-S3 Projector

The weight - 2.5kg - is ideal for the travelling businessperson, and with a brightness of 1,600 Ansi lumens and contrast ratio of 500:1 the EMP-S3 from Epson offers good specifications for the price. Using it in economy mode, you should be able to get 3,000 hours out of the lamp, according to Epson, and at the low-brightness mode it operates at 28dB.

- Epson: 0800 220 546
- [www.epson.co.uk](http://www.epson.co.uk)
- £599 inc VAT







MESH recommends Microsoft® Windows® XP Professional for Business

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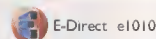
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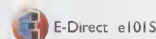


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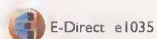


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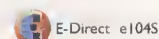
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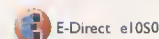
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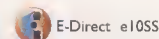
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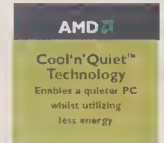
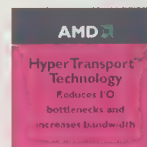
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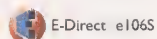


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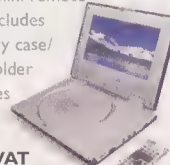
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Visit <http://webhosting.lycos.co.uk> for more information



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We've got together with Brother to offer four lucky readers a fantastic colour printer from their new range for home or home office

Brother's range of all-in-ones combine up to seven fantastic functions in one super sleek silver machine, designed specifically for your home or home office. This DCP310CN retails at £120 and is compact, quick and more feature-packed than ever before.

Printing speeds have increased from Brother's previous inkjet range at up to 20ppm (pages per minute) mono, and 15ppm colour. And you can take advantage of this speed at a resolution of 1,200dpi (dots per inch) x 6,000dpi.

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competition closes on 31 July 2005

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**M**ulti-processor computing used to be the domain of servers and high-end workstations. Implementing more than one processor in a PC was costly and difficult – as well as the hardware, you needed an operating system that knew what to do with it. But now Intel and AMD are launching dual-core processors, and the consumer space is going to see what it's been missing.

Windows XP has helped in this process. Microsoft previously had two flavours of OS: NT and 98. Only the-business targeted NT supported multi-processors, so users of the consumer 98 would have to change OS to take advantage. Even with the right OS in place, multi-processors weren't for the fainthearted. Processor and motherboard support was at the server end of the market, with price tags to match. It was difficult to justify the costs involved.

You also need software that can take advantage of multi-threading, allowing it to complete multiple processes at once. The hardware tended to be used by specialist niches, and software support followed this trend. Hyperthreading made a difference, but it's only now desktop multi-processor systems are a reality that we're likely to see an impact.

It's been a long journey, but the time is right.

Both Intel and AMD have drastically simplified the process by including two processors on a single core. OS support is available and the software side of things will come in due course.

Dual core is a welcome way of increasing a system's processing grunt. It's currently priced for the top end of the market, but like all things IT you can expect it to quickly become an essential, as opposed to an expensive, addition. Turn to page 58 for a full review of the Evesham Dominator X2, which uses dual-core technology.



**Dual core is  
a welcome way  
of increasing  
a system's  
processing grunt**



## Scoring and testing explained

### How we rate hardware

- **Features** This score rates a product's specifications by current standards.
- **Build quality** This denotes how well a product is made and takes into account the quality of its individual components.
- **Value for money** The price of a product will often be the deciding factor between a good and bad review. Cheaper products won't always win, but a better price/performance and features ratio means a higher score.

### How we rate software

- **Ease of use** Rates how easy software is to install and use.
- **Value for money** We're looking for lots of features, good performance and a low price.
- **Features** Indicates how much the package contains. An office suite that only came with a spreadsheet would score poorly.



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Our Gold award honours product excellence and indicates it may enter our charts next month.

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## POWER PC

## Evesham Dominator X2

1 Evesham: 0870 160 9500  
 2 www.evesham.com  
 3 £1,499 inc VAT

## SPECIFICATIONS

AMD Athlon 64 X2 4200+; Windows XP Home; 1GB DDR; 300GB hard drive; 2 x 128MB nVidia 6600 GT PCI-X; 19in Viewsonic VX912 flat-panel; 48x/48x/24x (CD-ROM/-R/-RW) drive; 16x/12x/16x/4x/4x/4x (DVD-ROM/-R/-R/+R DL/-RW/+RW) drive; Creative Audigy2 ZS sound card; Creative Labs Inspire T7900 speakers; 2-year onsite, 1-year return-to-base warranty

## GOOD POINTS

Cutting edge, future-proofed technology

## BAD POINTS

Average performance for non multithread software

**BUILD QUALITY** ++ + + + + + + + + + +

**FEATURES** ++ + + + + + + + + + +

**VALUE FOR MONEY** ++ + + + + + + + + + +

Evesham can usually be relied upon to deliver the latest, greatest technology. This time the company has got hold of something that could revolutionise computing.

This Dominator X2 houses AMD's Athlon 64 X2 4200+, bringing dual-core processor technology to the mass market. It's a great addition and one backed by a brilliant specification and feature set, wrapped up in a generous warranty. This makes the Dominator X2 one of the most interesting PCs we've had through the Test Centre.

In effect, the dual-core technology allows two processors - in this case running at 2.2GHz - to be built on to a single die, which makes it easier to manufacture. And AMD has sensibly made the new chip compatible with existing Socket 939 motherboards that support its current lineup of processors. If you have a recent AMD chip upgrading is a cinch.

So does dual core mean twice the power? You might think so, but it's more complicated than that. The Dominator X2 returned an average WorldBench 5 score of 99 despite having 1GB of DDR RAM and a 300GB hard drive backing up the processor.

## Dual core put to the test

Both Intel and AMD are tackling dual core to bring increased processing power to computer systems. We tested two top-of-the-range systems provided by Intel and AMD respectively to see how the performance benefits stack up. The Intel system featured a Pentium 4 Extreme Edition 840 processor, which uses two 3.2GHz cores with hyperthreading, 1GB of DDR2-667 memory and a Radeon 850XT graphics card. AMD's system used an Athlon 64 X2 4800+, with two 2.4GHz cores, 1GB of DDR400 memory and a GeForce 6800 Ultra graphics card.

The table below shows the overall results in WorldBench 5, plus individual tests that take advantage of multitasking and multithreading. Other than the overall WorldBench score, the results are the time taken to complete the test in seconds - the lower, the better.

Processor	WorldBench 5 score	Windows Media Encoder 9.0	Roxio VideoWave 1.5	Multi-tasking test	Ahead Nero Express 6.0	Adobe Photoshop 7.0.1	Adobe Premiere 6.5
3.2GHz Pentium 4 EE 840 (dual core, HT on)	95	340	274	590	457	357	479
3.2GHz Pentium 4 EE 840 (dual core, HT off)	95	318	267	599	469	370	482
2.4GHz AMD Athlon 64 X2 4800+	114	258	246	415	448	302	346

## Verdict

Judged purely on a price-to-performance ratio, this system isn't necessarily the best. If you don't want to wait until you can get the full value of dual-core technology, you might want to opt for a stronger performer in our Power PC chart (page 220). But the Dominator X2 is certainly future-proofed. **✗** Spencer Dalziel and Anush Yeghazarian



We did get supremely quick video encoding speeds: a mere 4.33 seconds - just shy of our fastest result ever. With two 128MB nVidia 6600 GT PCI-X dual SLI graphics cards we got more than 100fps (frames per second) in Doom 3 at a resolution of 1,024x768. However, overall performance was nothing to get excited about and you'd be forgiven for thinking dual core is a mere marketing exercise.

The main benefits won't be realised until software developers write consumer-based programs that utilise two processors to complete processes simultaneously - this is known as multithreading. At the moment such applications are rare, but there should be plenty right around the corner.

For now, then, the only real benefit to be had from dual-core processing is when you're using your PC for multitasking, such as running antivirus software and playing a game at the same time.

Evesham has obviously spent its money on the processor so we weren't surprised to see ViewSonic's VX912 19in flat-panel. This isn't quite as good as the 4ms ViewSonic model that graces Evesham's Axis AK47, but it's still one of the better flat-panels out there. Every other feature is spot on, from the dual-layer DVD writer to Creative's solid Audigy2 ZS soundcard, complemented by 7.1 channel speakers.



## POWER NOTEBOOK

## Mesh Pegasus Turion64 37 PCA

Mesh: 0870 046 4747  
 www.meshcomputers.com  
 £1,199 inc VAT

## SPECIFICATIONS

2GHz AMD Mobile Turion64 ML-37 processor; Windows XP Home; 1GB DDR RAM; 100GB hard drive; 17.1in 1,440x900 TFT display; 128MB ATI Mobility Radeon 9700 graphics card; 24x/24x/24x (CD-ROM/-R/-RW) 8x/8x/8x/2.4x/4x/4x (DVD-ROM/-R/-R/+R DL/-RW/+RW) drive; 802.11g facilities; 393x275x38mm; 4kg; Microsoft Works 8.0; 1-year parts-and-labour; 2-year labour-only warranty

## GOOD POINTS

Competitive price, good software package, solid warranty

## BAD POINTS

Dated graphics, average performance

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

We all know that notebooks generally come in one of two flavours: first, there's the thin-and-light category; second, there's the desktop replacement. The Pegasus Turion64 37 PCA from Mesh is definitely one of the latter. Of that there can be no doubt.

So it seems odd for the Mesh to have a Turion processor, AMD's new 64bit mobile CPU. The 2GHz Turion64 ML-37 is one of seven Turion CPUs, runs at 2GHz and has 1MB of Level 2 cache. The name Turion has its roots in the word 'tour'. It's intended to suggest travel, adventure and so on -

a standard way of marketing anything of a mobile nature in the IT industry.

What you really need to know is how the naming conventions work after that. The M stands for mobile, but the L doesn't stand for anything, it just distinguishes the chip from the MT processors, which have slightly lower power consumption but are presumably not as fast as the MLs.

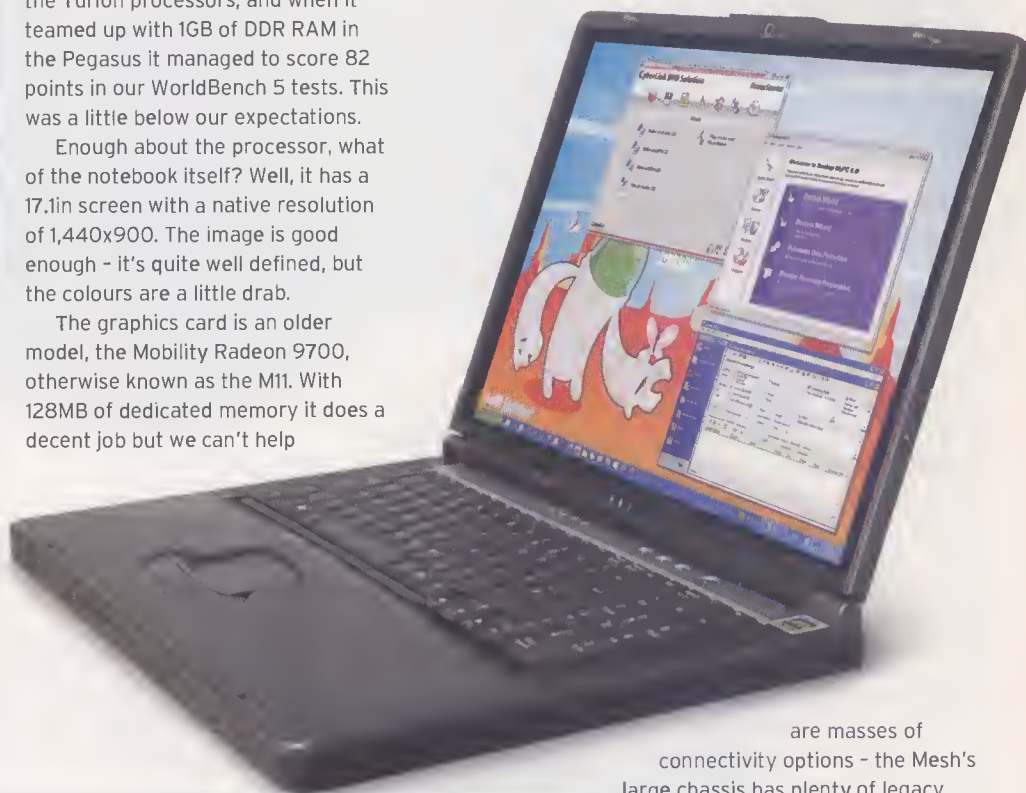
In terms of clockspeed, the Turion64 ML-37 is the fastest of all the Turion processors, and when it teamed up with 1GB of DDR RAM in the Pegasus it managed to score 82 points in our WorldBench 5 tests. This was a little below our expectations.

Enough about the processor, what of the notebook itself? Well, it has a 17.1in screen with a native resolution of 1,440x900. The image is good enough - it's quite well defined, but the colours are a little drab.

The graphics card is an older model, the Mobility Radeon 9700, otherwise known as the M11. With 128MB of dedicated memory it does a decent job but we can't help

feeling that it leaves the Pegasus looking like a strange mishmash of the old and the new. Battery life topped out at a somewhat uninspiring 118 minutes in our MobileMark tests, reinforcing our feeling that this is primarily a desktop replacement.

A 100GB hard drive is a generous amount of storage space for your files, and if that's not enough, there's a dual-layer DVD writer for backing up and burning home movies. There



are masses of connectivity options - the Mesh's large chassis has plenty of legacy ports as well as three USB 2.0 ports, S-Video and VGA-out. And you'll find a built-in SD card reader.

## Turion: what's all the fuss about?

If you've been keeping your ears open recently you'll probably have heard a lot about Turion, AMD's latest processor. So have we. But, frustratingly, we've had precious little chance to get our hands on this technology to test it out.

According to AMD, the Turion chip is "uniquely optimised to deliver [64bit] performance in thinner and lighter notebook designs with longer battery life". While it does use a Turion chip, the Mesh Pegasus Turion64 37 PCA isn't exactly thin and light - it has a 17in screen and weighs 4kg - so it isn't the ideal shell with which to test out this technology.

In terms of performance, the Mesh's 2GHz Turion64 ML-37, combined with 1GB of DDR RAM, managed a score of 82 in our WorldBench 5 tests. The 2GHz Pentium M 760 and 512MB of DDR RAM in the Hi-Grade Notino C7000S just beat that with 83.

It's early days, so it's impossible to say for sure, but it looks as though the Turion chips aren't quite comparable to the Pentium M chips as far as outright performance is concerned. And to what extent they drain the battery under normal, everyday use isn't something we can fairly assess yet either. Whatever the eventual results of our tests in those two areas, however, it must be taken into account that the Turion chips hold a trump card over their Pentium M counterparts: 64bit technology. Watch this space for further news on how the Turion CPUs match up to the Pentium Ms.

## Verdict

Mesh has pitched this notebook at a competitive price for what it is offering. Not only is there the new and much-hyped Turion technology, but plenty of RAM and storage space as well. The graphics card might be a bit of an oldie but it is still up to the job, as we achieved some playable frame rates in both Doom 3 and Halo, even at a resolution of 1,024x768.

With a good software package and a solid three-year warranty this laptop is good value, but its slightly disappointing performance means the Mesh just misses out on a Gold award.

Ben Camm-Jones

## POWER NOTEBOOK

# Sony Vaio VGN-T2XP/S

**Sony:** 08705 111 999  
**www.sony.co.uk**  
**£1,699 inc VAT**

### SPECIFICATIONS

1.2GHz Intel Pentium M 753; Windows XP Pro; 512MB RAM; 60GB hard drive; 10.6in 1,280x768 TFT; Intel 855GME graphics controller; 24x/24x/10x (CD-ROM/-R/-RW); 8x/2x/2.4x/2x/2.4x (DVD-ROM/-R/+R/-RW/+RW); 802.11b/g-enabled; Bluetooth; Adobe software bundle; Microsoft Works 8.0; Symantec Internet Security 2005; 1.4kg; 272x205x34mm; 1-year return-to-base warranty

### GOOD POINTS

Small size; great looks; internal DVD writer

### BAD POINTS

Average performance; expensive price tag

**BUILD QUALITY** ++++++

**FEATURES** ++++++

**VALUE FOR MONEY** ++++++

You can't dispute Sony's ability to make desirable machines - everything about the snappily titled VGN-T2XP/S (affectionately known simply as the T2) screams 'own me'.

First, there's the size. Forget huge desktop replacements - the T2 clocks in at a titchy 272x205x34mm. That makes it only slightly smaller than a sheet of A4 paper - definitely a notebook for those on the move. And at 1.4kg, it won't slow you down.

It may be small in size, but it's big on features - the most obvious highlight is the dual-format DVD writer on the righthand side. It's not going to win any awards for its 8/2/2.4/2/2.4-speed (ROM/-R/+R/-RW/+RW) performance, but the fact it's included internally, and not as a bulky external add-on, is a bonus for the space-conscious traveller.

The feature list doesn't stop there, either. You'll also find modem and ethernet connectors next to the DVD writer, and flip over to the other side and you'll find two USB 2.0 ports, FireWire, VGA-out, one PC-card slot and a Memory Stick reader.

Apart from the Kensington lock security attachment and power input, the rear of the machine is dominated by the battery. It extends 20mm from the main unit, but its rounded design makes it aesthetically pleasing and doesn't detract from the overall look.

Round the front there's a switch for wireless access - pretty useful for quick deactivation in areas where

you're not allowed to use it - along with volume buttons and sockets for headphones and a microphone.

Despite its small size, the keyboard is incredibly useable. It may take a while to become totally accustomed to it since the keys are relatively small and close together, but after some practice you should be able to achieve decent typing speeds.

### Zone in

Sony has also considered software. The bundled Vaio Zone application makes browsing and viewing multimedia painless, aided by the hardware Play/Pause, Stop, Fast Forward and Rewind buttons above the keyboard. And all the stops have been pulled out with the inclusion of Adobe's Premiere Standard, Acrobat Elements and Photoshop Elements, plus Microsoft Works 8.0 and Symantec Internet Security 2005.

Hardware-wise, the T2 packs an Intel Pentium M 753 processor running at 1.2GHz, 512MB of RAM, a 60GB hard drive, Bluetooth and Wi-Fi facilities, and a 10.6in X-black screen (for greater contrast and colours),

powered by an integrated Intel 855GME graphics controller that uses 64MB of shared memory.

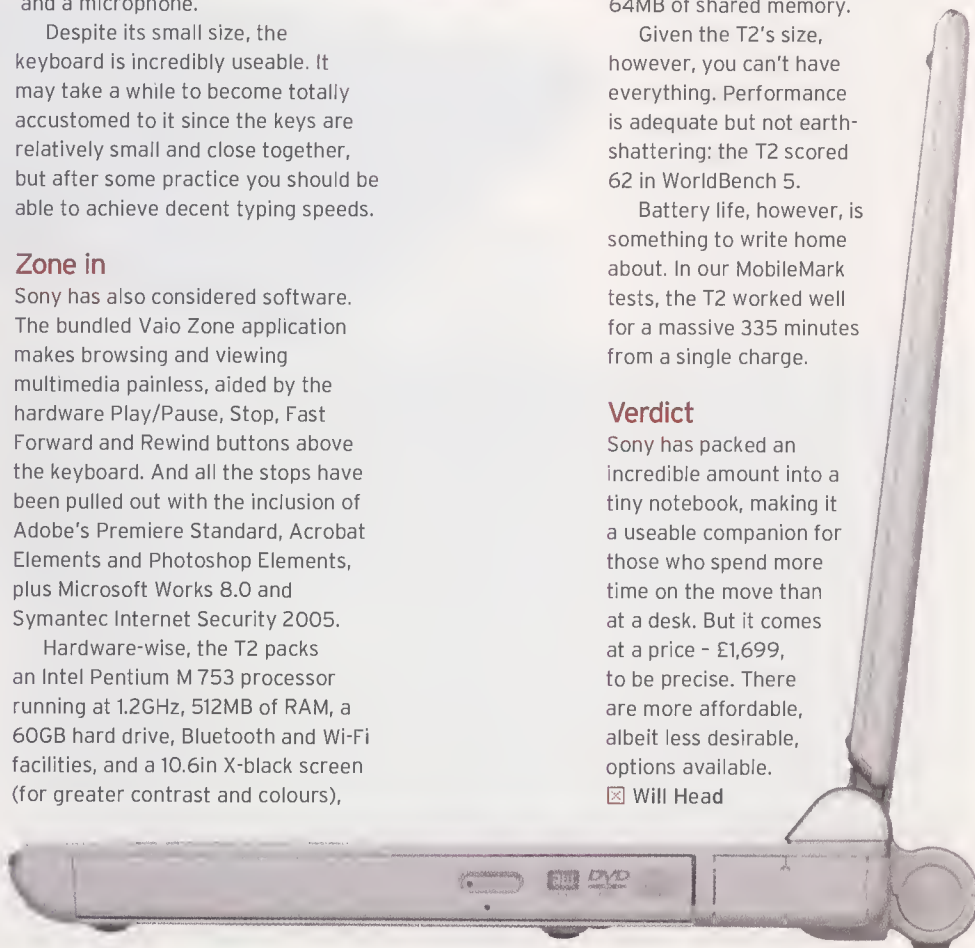
Given the T2's size, however, you can't have everything. Performance is adequate but not earth-shattering: the T2 scored 62 in WorldBench 5.

Battery life, however, is something to write home about. In our MobileMark tests, the T2 worked well for a massive 335 minutes from a single charge.

### Verdict

Sony has packed an incredible amount into a tiny notebook, making it a useable companion for those who spend more time on the move than at a desk. But it comes at a price - £1,699, to be precise. There are more affordable, albeit less desirable, options available.

Will Head





## POWER NOTEBOOK

## Hi-Grade Notino C7000S

EXCLUSIVE

Hi-Grade: 020 8532 6120  
 www.higrade.com  
 £1,292 inc VAT

## SPECIFICATIONS

2GHz Intel Pentium M 760 processor; Windows XP Home; 512MB DDR RAM; 100GB hard drive; 15in 1,400x1,050 TFT display; 128MB nVidia GeForce Go 6600 graphics card; 24x/24x/10x (CD-ROM/-R/-RW) 8x/8x/8x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) drive; 802.11a/b/g facilities; 326x270x32mm; 2.7kg; 2-year collect-and-return warranty

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

If you're looking for a notebook with great graphics performance, you could do a lot worse than the Notino C7000S from Hi-Grade.

With a good-quality 15in screen stretching to a resolution of 1,400x1,050 and a 128MB GeForce Go 6600 graphics card the Notino flew through our tests. On Doom 3 it managed a frame rate of 53.4fps (frames per second) at 1,024x768,

dropping to 36.8fps at 1,280x1,024. On Halo the results were 44.1fps and 33.9fps at the same resolutions.

For gaming on the move it's not too heavy; 2.7kg. But the battery doesn't last for long - it didn't even last for two-and-a-half hours in our tests. We'd expect a lot more from a notebook of this size. Using a 2GHz Pentium M 760 processor the Hi-Grade offers a decent turn of speed, achieving 83 points in WorldBench 5. However, when you consider that this model's predecessor, the C7000, scored 90 it's a little disappointing.

At a beefy 100GB, you'll find plenty of room on the hard drive for all your media files and documents. If you do need to make a bit of space, then you can burn DVDs of just about any format, including dual-layer discs.

On the wireless connectivity front, the Hi-Grade conforms to 802.11a/b/g standards, but doesn't have Bluetooth capabilities.

The warranty lasts for two years and gives collect-and-return cover. We'd prefer to see repairs carried out onsite but it's still not a bad deal. There's a noticeable lack of office suite software, though.

## Verdict

With a well-designed chassis and good keyboard, the Notino is functional and easy to use. The battery life and performance could have been better, but overall the C7000S is a decent notebook, even if it doesn't quite earn a Gold award. ☒ Ben Camm-Jones

## POWER NOTEBOOK

## Toshiba Portege M300

Toshiba: 01932 841 600  
 www.toshiba.co.uk  
 £1,408 inc VAT

## SPECIFICATIONS

1.2GHz Intel Pentium M 753 processor; Windows XP Professional; 512MB DDR RAM; 60GB hard drive; 12.1in 1,024x768 TFT display; 24x/24x/10x (CD-ROM/-R/-RW) 8x/8x/8x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) drive; 802.11b/g facilities; Bluetooth; 285x234x31mm; 1.8kg; 3-year international warranty

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

The latest model in Toshiba's popular Portege range, the M300 is a thin and light notebook with one of the best batteries we've ever seen at *PC Advisor*. With five hours and 15 minutes of life, the M300 is a great machine to have with you if you don't have an AC power source nearby.

Using an ultra-low voltage Pentium M 753 processor running at 1.2GHz and with just a 12.1in screen to support, it isn't surprising that the

battery life is good. But this leads to one major drawback: the Portege is quite slow. We'd expect a WorldBench 5 score of more than 66, considering it costs the best part of a grand and a half.

512MB of DDR RAM and a 60GB hard drive are fairly standard in notebookland at the moment, as is the dual-format, dual-layer DVD writer. The 12.1in screen stretches to a resolution of 1,024x768, and while the colours may seem faded, the image itself is sharp and detailed.

Connectivity options are good, with IrDA, Bluetooth and 802.11b/g for connecting wirelessly and three USB 2.0 ports and a FireWire port for hooking up peripheral devices.

In terms of design the Toshiba can't be faulted. The chassis might be small, but it's solidly built. The keyboard will suit most users as the most commonly used keys are nice and big, despite the diminutive casing, and the arrow keys are isolated from the other keys for ease of navigation.

A variety of Toshiba utilities keep the notebook secure, and a built-in motion sensor protects the hard drive if the Portege is dropped or knocked.

## Verdict

It's a great ultraportable with plenty of features, but it's just too expensive for our liking. XP Pro is a bonus and the three-year international warranty is generous, but there's no office suite software. It's also a bit slow for our liking. ☒ Ben Camm-Jones



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10/100 network connection - v92 56k modem - 6xUSB2.0 - Tool free case (Xpider or Sleek) 453x222x495mm - Microsoft Works 8.0 - CD/DVD creation software, Video editing and DVD playback software - eTrust Antivirus software including 3 months virus updates - 3 year warranty (2 years on-site, 1 year RTB) **Floppy drive is optional**

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- 200GB Serial ATA hard drive with BMB buffer
- 256MB ATI Radeon X700 PCI Express graphics
- 17" (16" visible) Viewsonic E72f+5B PerfectFlat (CRT) monitor
- DVD-ROM (16x) drive
- Multi Format Dual Layer DVD Writer (16x) / CD-RW (40x) drive
- Microsoft® cordless keyboard and cordless optical tilt mouse
- 7.1 channel surround sound (on-board)
- Creative Inspire P5B00 5.1 or Creative I-Trigue 3200 speakers
- Microsoft® cordless keyboard and cordless optical tilt mouse

10/100 network connection - v92 56k modem - Firewire port - 6xUSB2.0 - Tool free case (Xpider or Sleek) 453x222x495mm - Microsoft Works 8.0 - CD/DVD creation software, Video editing and DVD playback software - eTrust Antivirus software including 3 months virus updates - 3 year warranty (2 years on-site, 1 year RTB) **Floppy drive is optional**

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### Axis 64 Dominator

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- 17" Viewsonic VX715 DVI TFT monitor (16ms response)
- DVD-ROM (16x) drive
- Multi Format Dual Layer DVD Writer (16x) / CD-RW (40x) drive
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- Multi Format Dual Layer DVD Writer (16x) / CD-RW (40x) drive
- 7.1 channel surround sound (on-board)
- Altec Lansing 121 2.1 speakers
- Microsoft keyboard and optical wheel mouse (black)

10/100 network connection - v92 56k modem - 6xUSB2.0 - Tool free case (Xpider or Slek) 453x222x495mm - Microsoft Works 8.0 - CD/DVD creation software, Video editing and DVD playback software - eTrust Antivirus software including 3 months virus updates - 3 year warranty (2 years on-site, 1 year RTB) Floppy drive is optional

**£699** inc VAT (£594.89 ex VAT)

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**£894** inc VAT (£760.85 ex VAT)



## Voyager A410 MT-28

"Next generation AMD based notebook... the ULTIMATE desktop replacement"

- AMD Turion™ 64 Mobile Technology MT-28
- Microsoft® Windows® XP Home Edition
- 512MB DDR RAM, 333MHz
- 60GB 5400rpm hard drive
- 15.4" WXGA widescreen TFT display (1280x800)
- 128MB ATI Mobility Radeon X700 graphics
- DVD/CD-RW/Dual Layer DVD-RW drive
- 8 cell Li-Ion battery (life up to 2.5hrs approx.)
- Wireless Mini PCI 802.11bg (54Mbps) LAN
- Bluetooth
- Built in media card reader (MMS, MS, SD)
- Weight - 2.8kg
- Dimensions - 355mmx255mmx30mm

4xUSB2.0, Firewire, VGA, PCMCIA Type II x1 - 10/100 LAN, v90 56k modem - built-in audio & speakers - Microsoft Works 8.0 - CD/DVD creation software, Video editing and DVD playback software - eTrust Antivirus software including 3 months virus updates - 3 year warranty - 1 year on-site, 2 years RTB

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- AMD Turion™ 64 Mobile Technology MT-37
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## Voyager C510

"Highly recommended Great performance"

- Intel Pentium M processor 730 (1.6GHz, 2MB L2 cache, 533MHz)
- Microsoft® Windows® XP Home Edition
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- 8 cell Li-Ion battery (life up to 4hrs approx.)
- Wireless Mini PCI 802.11abg (54Mbps) LAN
- Built in media card reader (MMC, SD, MS-Pro)
- Weight - 2.9kg
- Dimensions - 357mmx276mmx35mm

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## BUDGET NOTEBOOK Averatec 4200

Averatec: 0871 240 5060  
www.averatec.co.uk  
£899 inc VAT

### SPECIFICATIONS

1.6GHz Intel Pentium M 730 processor; Windows XP Home; 512MB DDR RAM; 80GB hard drive; 13.3in 1,280x800 TFT display; 24x/24x/10x (CD-ROM/-R/-RW) 8x/8x/8x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) drive; 802.11b/g facilities; Norton AntiVirus; 316x224x31mm; 2kg; 1-year collect-and-return warranty

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

A newcomer to the UK, Averatec was established in the US in 2002 and has quickly grabbed a decent chunk of the market. The 4200 is the first Averatec notebook that we've seen at *PC Advisor* and it's a very solid performer.

The first thing we noticed about the Averatec was the price tag - under £900. When you consider you get a Pentium M 730 processor

running at 1.6GHz, 512MB of DDR RAM and an 80GB hard drive, that's a lot for your money.

Performance is roughly what you'd expect from the specifications; in our WorldBench 5 tests the 4200 scored 72. The battery life, while not outstanding, was okay for a notebook of this size, at a shade under four hours. It's light and petite - you could definitely take it on the road.

At 80GB the hard drive is a good size, but should you need additional storage or backup options then the dual-layer DVD writer is a decent model. The screen is particularly

impressive - colours look deep and rich, giving it the feel of a CRT screen rather than a TFT. The down side is that it's quite reflective, so you might need to shift it around if the sun or a light is shining on it.

In terms of design this notebook is interesting: the outside of the casing is navy blue, but when it is opened up you are greeted by a white keyboard. It won't be to everyone's taste, but we didn't find it offensive. The keyboard is well laid out and has decent-sized keys. And the touchpad works well.

### Verdict

A solid performer in most areas, the Averatec doesn't quite earn a Gold award. It has plenty to recommend it, though - the storage and backup options, and the screen. The keyboard is very user-friendly and you can activate the Wi-Fi facilities and power-saving options at the touch of a button. **Ben Camm-Jones**



## POWER PC Evesham Axis AK47

Evesham: 0870 160 9500  
www.evesham.com  
£1,299 inc VAT

### SPECIFICATIONS

AMD Athlon 64 3700+; Windows XP Home; 1,024MB DDR; 250GB hard drive; 2x 256MB nVidia 6800LE PCI-X; 19in ViewSonic VX924 flat-panel; 48x/48x/24x (CD-ROM/-R/-RW) drive; 16x/12x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) drive; integrated audio; Creative I-trigue 3200 2.1 channel speakers; 2-year onsite, 1-year return-to-base warranty

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

It must be hard coming up with names for computers. Titles such as Dominator, Fireblade and Titan sound like you're buying something for the weekend. But this is the first PC we've seen that's named after a gun.

The AK47 is the weapon of choice for Soviet forces. It's cheap to manufacture, and has a reputation for ruggedness, reliability and ease of maintenance in the field - not a bad set of values to align yourself with

(except for the whole killing thing). Like its namesake, the Axis AK47 is a solid workhorse, but it's also blessed with a great feature set.

In terms of performance, however, the Axis AK47 is not much cop. Its WorldBench 5 score of 93 is low for a power PC, but it's to be expected, because Evesham packed only an Athlon 3700+ in the system. This is combined with 1GB of DDR RAM and a sub-par 250GB hard drive.



Clearly Evesham used its pennies elsewhere - specifically on the outstanding screen. The VX924 has the lowest response time ever seen in a flat-panel - 4ms - so it really is blur-free.

The two 256MB nVidia 6800 cards gave consistently high frame rates in our tests. Doom 3 at 1,280x1,024 ran at a smooth 70.4fps (frames per second), and Halo achieved 77.85fps. It's a shame the onboard audio is no match for the visual setup, but the Creative I-trigue 3200 speakers aren't bad for a 2.1 channel system.

### Verdict

A bit of a mixed bag, really, and sales of the Axis AK47 will depend on what people want from their PCs. If you're after sheer power and the best graphics and audio, leave well alone. If you're after that perfect display and a good all-rounder that's not too expensive, this is ideal. Go on, it won't kill you. **Spencer Dalziel**



## DIGITAL SLR

## Fujifilm FinePix S3 Pro

Fujifilm: 020 7586 1477  
 www.fujifilm.co.uk  
 £1,600 inc VAT (excluding lens)

## SPECIFICATIONS

6.17Mp SuperCCD (12.34Mp total pixels); max res 3,024x2,016 or 4,256x2,848 (scaled); takes any Nikon F-mount lens; takes CompactFlash or xD-Picture cards (not supplied); image size at best Jpeg quality: approx 2.8MB; 2in LCD screen and optical SLR viewfinder; takes four AA batteries, rechargeables and recharger supplied; 147x135x79mm; 815g excluding battery and lens; 1-year warranty

## GOOD POINTS

Good resolution and high dynamic range possible; decent build quality and portrait controls; fast startup and both USB 2.0 and FireWire interfaces

## BAD POINTS

Double the price of a Nikon D70 or Canon 350D; modest burst mode; no movie mode (although this is normal for a digital SLR)

BUILD QUALITY ++++++  
 FEATURES ++++++  
 VALUE FOR MONEY ++++++

Fujifilm's FinePix S3 Pro is an SLR (single lens reflex) digital camera that claims up to four times the dynamic range of its rivals. This means detail previously lost in bright highlight areas can be preserved.

Fujifilm's SuperCCD SR II sensor is the technology responsible. It employs not one but two separate pixels for every location on the sensor - one has normal sensitivity, while the second is less perceptive. This latter pixel can subsequently retain detail in bright highlight areas when the normal pixel is saturated. Data from the two is then combined to produce an image with a wider tonal dynamic range.

The S3 Pro has 6.17 million normal-sensitivity pixels and an equal number of low-sensitivity ones. This makes 12.34 million in total, but that doesn't make the S3 Pro a 12Mp camera. These low-sensitivity pixels extend the dynamic range, not the resolution,

so it's fairer to describe the S3 Pro as 6.17Mp. That said, like other SuperCCD cameras Fujifilm offers an option to scale the S3 Pro's pictures to 12Mp.

Although it takes CompactFlash or xD-Picture memory cards, you'll need to supply your own. Images can be saved with the two Jpeg settings, but RAW files can only be recorded at the scaled-up 12Mp resolution.

Based on the Nikon F90 film SLR, the S3's body takes any F-mount lens (with a focal length multiplication of 1.5) and feels well built. It's taller to accommodate four AA batteries, giving Fujifilm the opportunity to fit a portrait grip and shutter release. Along with a pop-up flash and hotshoe, there's a PC-sync port for studio lights and both FireWire and USB 2.0 connectivity.

## Going live

Uniquely for a digital SLR, the S3 Pro can flip its mirror up and deliver a live video image to the main screen, albeit in black and white. This could be used as a preview, although not as the main means of composition. Most shots will be composed through the S3's optical viewfinder, which offers optional LCD grid lines.

The main dial offers Program, Manual, Aperture and Shutter Priority modes, but no scene presets. Shutters range from 1/4,000 to 30 seconds plus Bulb mode for long exposures. ISO sensitivity runs between 100 and 1,600. There are separate controls for exposure and flash compensation, although in coarse half-stop increments. Two



optional modes simulate film stock designed for portrait or landscape photography.

In practice the S3 starts and fires its first shot quickly, although continuous shooting is relatively slow - 2.5 frames per second. In 6Mp mode it out-resolves 6Mp rivals, but falls below those with 8MP. Switch to 12Mp, though, and it'll match those models. There's also more detail recorded in bright highlights, which become washed-out on other models.

So the dynamic range is slightly better than the Canon 20D or Nikon D70, but is it worth £1,600? If you're a demanding photographer who shoots non-action subjects with lots of highlight detail, such as wedding dresses or certain landscapes, the S3 is worth considering. But most people will be more than satisfied with the output from cameras such as the Canon's 350D, for half the price.

## Verdict

Fujifilm's S3 Pro claims a higher dynamic range than its rivals and delivers it with detail in bright highlights that might otherwise be washed out; it also resolves around 8Mp of detail. The increased dynamic range is impressive, but might be exploited only by a limited number of photographers or conditions. Ultimately, unless you're specifically after this facility, cheaper rivals offer better value. **Gordon Laing**

## Using the extra dynamic range

In order to exploit the S3's extra dynamic range, you'll need to switch from Standard to Wide mode in the main menu. You can then use the rear controls to choose Auto, Wide 1 and Wide 2, to select how data from the pairs of sensors is combined.

Wide 2 offers the broadest dynamic range, but remember that the system is designed to deliver extra detail in bright highlight areas, not dark shadows. To make the most of this function you'll also need to shoot hefty 25MB RAW files.



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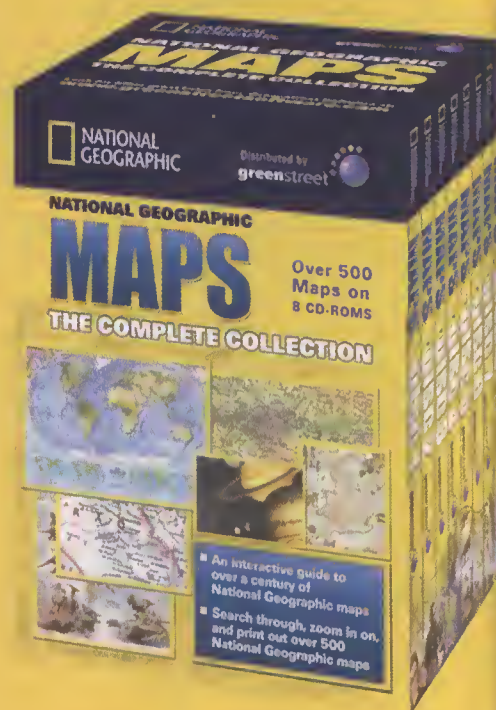
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DVD Sleeve 092939202570

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## INTERMEDIATE DIGITAL CAMERA

## Ricoh Caplio GX8

Ricoh: 020 8261 4031  
 www.ricohpmc.com  
 £299 inc VAT

## SPECIFICATIONS

8.2Mp; max res 3,264x2,448; 3x optical zoom; 4x digital zoom; SD card slot; 2x AA batteries; 26MB internal memory; max photos on 26MB at 3,264x2,448=1 non-compressed Tiff or 8 compressed Jpegs; 1-year warranty; 114x29x5mm; 205g

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

The main reason you'll want to get your hands on the Caplio GX8 is the number of megapixels it packs. Ricoh is the first manufacturer we've seen to produce a camera that can capture this level of detail for £300.

But while the GX8 does what it says on the tin, the execution is pedestrian. It has a rough exterior and black plastic buttons, and onscreen navigation is a bit backward. Rather than specifying the



megapixel level you want, you select, say, NC3244, which equates to the excellent non-compressed 3,224x2,448 Tiff setting. This shouldn't be confused with the F3264 setting, which takes shots as a much less impressive compressed Jpeg.

The powerful macro mode locks in on a subject as little as a centimetre away, so you can capture really fine detail. However, the LCD screen is small, dark and not that hot at previewing colours accurately.

The GX8 powers up in less than a second and the continuous shooting mode is very fast: you can take up to 16 pictures in the space of two seconds, but only as Jpegs, not Tiffs.

We weren't convinced by the scene mode, which optimises shots according to the lighting conditions you've specified, but you can programme in your own settings.

The GX8 comes with only 26MB of internal memory and is fairly battery-hungry. The supplied software for transferring photos to a PC isn't incredibly easy to use, either.

## Verdict

Pricewise, Ricoh has come up with a groundbreaking compact camera that we're sure will have many of you reaching for your chequebooks. It's not pretty or fun, but it's excellent value. Bear in mind that you'll need a capacious SD card and a supply of batteries. ☒ Rosemary Haworth

## INTERMEDIATE DIGITAL CAMERA

## Canon Ixus 50

Canon: 08705 143 723  
 www.canon.co.uk  
 £319 inc VAT

## SPECIFICATIONS

5Mp CCD; 3x optical zoom; f/2.8-f/4.9; 2in LCD screen; ISO 50-400; rechargeable li-ion battery with charger; 86x53x20mm; 130g

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

It could be argued that Canon's Ixus range is characterised by stunningly designed cameras that lack a certain degree of functionality. The Ixus 50 sees Canon edging up the specification without wildly inflating the price to produce a beautiful, simple camera with a bit more clout.

For a start, the 5Mp CCD (charge-coupled device) is a whole lot of imaging chip - a distinct improvement on Ixuses past. This stares out at the world through a larger lens than Canon has sometimes employed, which shows in the clarity of the images it captures.

These you view on a 2in LCD screen at the back of the camera - pretty much as big as Canon could squeeze on. The LCD is clear and responsive and has good visibility even under direct sunlight. There's also an optical viewfinder, but this, disappointingly, shows you only part of the picture frame.

By keeping the functionality down, Canon ensures the menus are tidy and effective. There are eight pre-set shooting modes (including Macro, Night, Kids and Animals, and Indoor) as well as Manual control over white balance and aperture and a range of My Colours functions that emphasise or mute certain colours.

Canon's customary nine-point autofocus system makes for smooth



shooting. Colours are vivid, even without optional boosting and, while image clarity is sometimes slightly poor on close examination, the Ixus certainly takes smart enough snaps.

The optical zoom is a rather average 3x and the memory card's capacity a meagre 16MB. There are voice memo and movie functions, but you'll need a larger SD card for the latter. Canon has tried to make printing and sharing pictures as easy as possible, so the Ixus 50 fits well into the digital lifestyle.

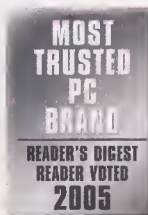
## Verdict

Canon keeps it simple, effective and good-looking. For happy snapping in style at a decent price, you could do far worse than this nice little number. ☒ Simon Easterman

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### Further enhancements

- 3 Year Basic Services Package £94 excl. VAT
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- 2nd 8 Cell High Capacity Lithium-Ion Battery<sup>1</sup> £58 incl. VAT

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E-VALUE Code: PPUK4-N07121

### Further enhancements

- 3 Year Basic Services Package £94 incl. VAT
- 2nd 8 Cell High Capacity Lithium-Ion Battery<sup>1</sup> £47 incl. VAT
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## BUDGET DIGITAL CAMERA

### Fujifilm FinePix A345

■ Fujifilm: 020 7586 1477  
 ■ www.fujifilm.co.uk  
 ■ £150 inc VAT

#### SPECIFICATIONS

4.1Mp; max res 2,304x1,728; 3x optical zoom; 3.6x digital zoom; 16MB xD-Picture card; 1.7in LCD; 2x AA alkaline battery; max photos on 16MB=122; min=7; f2.8-f4.7; 1-year return-to-base warranty; 90x60x30.3mm; 132g

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

One hundred and fifty quid. Not a lot of money for a digital camera. But be warned: as ever, you get what you pay for. On the bright side, Fujifilm is offering ease of use and value for money in a compact model that delivers impressive outdoor photography and speedy operation.

On the down side, the 1.7in LCD has more blur than a Britpop fan and the FinePix A345 doesn't feel built to last. If you're after something sturdy for

family holidays you might want to look elsewhere - then again, at this price you could simply buy a replacement.

The A345 houses a 4.1Mp CCD (charge-coupled device), which translates into a maximum resolution of 2,304x1,728. Shots are stored on a 16MB xD card - that's room for only seven images on the highest quality setting, so you'll need a bigger card.

Fuji claims that the A345 has low power consumption, so you should be able to make the two AA alkaline batteries last - although we'd still advise you to opt for rechargeable nickel batteries if you've got them.

If you're looking to explore the possibilities of digital photography you'll be disappointed, because the A345 serves up the basics. It brings only exposure compensation, white-balance presets and portrait or landscape to the table. But that makes it ideal for absolute beginners.

While we got some great results in natural light - colours were



effervescent and detail was sharp - indoor shots looked flat in comparison. It's also worth noting that it's difficult to track moving subjects when you're composing shots using the large 1.7in display because of the blur - better stick to the optical viewfinder.

#### Verdict

You can't really go wrong for £150 and the A345 is about as plain vanilla as your cash will buy. On pure value for money alone, this camera is worth recommending. But there really is nothing remotely remarkable about it. **Spencer Dalziel**

## BUDGET DIGITAL CAMERA

### HP Photosmart R717

■ HP: 0870 010 4320  
 ■ www.hp.com  
 ■ £200 inc VAT

#### SPECIFICATIONS

6.2Mp; max res 2,864x2,160; 3x optical zoom; 8x digital zoom; 32MB internal memory (SD card slot); AA lithium rechargeable battery; 96x60x35mm; 204g; max photos on 32MB=188; min=8; 1-year return-to-base warranty

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

HP tends to provide technology with ease of use in mind and this is no exception. The fully featured Photosmart R717 doesn't pose a steep learning curve, thanks to a menu and control system designed to please the first-time buyer. It also houses a generous 6.2Mp CCD (charge-coupled device) that yields sharp, colourful pictures. Unfortunately there's a 'but'.

The R717 slows to a standstill to process images after three shots, regardless of the quality setting. You simply can't take shots in quick

succession, making it all too easy to miss the moment. Stick to extremely still life and the R717's a winner - but this is a major annoyance marring an otherwise great budget model.

With a brushed-metal front, the compact R717 feels comfortable in the hand and isn't overloaded with buttons. Novices will appreciate the onboard demo and optional explanatory text - there's even advice on the playback menu that analyses your images to tell you what you did wrong and how this can be corrected.



We were pleased to see the rechargeable lithium battery and comprehensive software bundle. HP's own adaptive lighting technology enhances foreground detail where backlight is excessive, and the panorama assist allows you to stitch up to five images together. The R717 can even make some tweaks normally done in post-production - such as colour, contrast, sharpness, and saturation adjustment.

The touted 24x zoom sadly relies on an 8x digi-zoom. Believe us, you can't get a clean shot with this much digital meddling, so it's fairly redundant. Apart from that, image quality is brilliant.

#### Verdict

The R717 has a lot going for it. There's no denying the quality of the photography, ease of use and options - it's even set at an extremely competitive price point. But the painfully slow image processing makes it hard for us to give glowing accolades. **Spencer Dalziel**



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## SMARTPHONE

### PalmOne Treo 650

**P**almOne: 0118 974 2700  
**W**ww.palmone.com  
**P** £449 inc VAT without contract

#### SPECIFICATIONS

GSM/GPRS/Edge quad-band phone; 850/900/1800/1900 Class 10B; removable, rechargeable lithium-ion battery (up to 6 hours of talk time or 12.5 days of standby); 21MB available storage; Palm OS 5.4; Intel 312 MHz processor; MMC/SD/SDIO expansion slot; 320x320 TFT display; backlit qwerty keyboard; VGA digicam; Bluetooth; infrared port; stereo headset-compatible; 59x23x113mm

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

PalmOne's Treo 650 smartphone very nearly pulls off the impossible. The PDA stalwart has come up with a hybrid mobile that offers data-crunching PDA power with email, internet access, a qwerty keyboard and an MP3 player. And crucially, the design is sufficiently demure to ensure you don't feel like you're talking into a handheld TV.

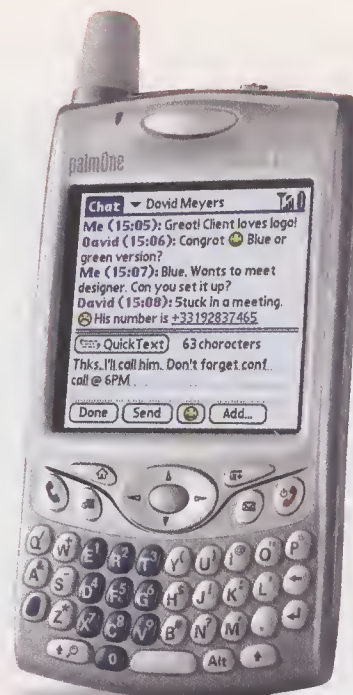
This model improves upon the groundbreaking 600, launched back in autumn 2003. It was a landmark: for the first time, BlackBerry users had a real alternative.

The most noticeable improvement is the display. The Treo 650 has a brilliant 320x320 screen, compared with the 160x160 resolution of the earlier model.

Most users will also applaud the re-design of the thumb keyboard. The new model's keys now sport small raised edges, so it's a lot easier to maintain a grip on them. Serious emailers will appreciate this significant improvement.

The other major upgrade is the Treo 650's removable rechargeable battery, which means you can carry a spare - a big plus when you plan a couple of days of intensive use before you can recharge.

Other improvements? Well, you can throw in an MP3 player and Bluetooth compatibility. And the device now uses flash memory, so



if its charge runs down it doesn't lose all your data.

There are, of course, a couple of niggles. With only 32MB of memory, and just 21MB available for apps and data, it won't be long before you'll need to buy additional storage. In a perfect world, the Treo 650 would also have Wi-Fi, for broadband net access on the move.

#### Verdict

To the already fine Treo 600, the 650 adds a removable battery, Bluetooth, an improved keyboard and a high-res display. It's expensive - although the price will depend on the subsidy if you buy it with a contract - but it's one of the few PDA/phone hybrids that does everything well. **Guy Dixon**

## SMARTPHONE

### T-Mobile SDA

**T**-Mobile: 0800 956 5001  
**W**ww.t-mobile.co.uk  
**P** Free with contract

#### SPECIFICATIONS

Tri-band GSM; GPRS; Windows Mobile 2003 Second Edition for Smartphone; 32MB RAM; 64MB ROM; 176x220 transfective TFT (35x45mm); mini-SD slot; Bluetooth; infrared; VGA camera; 4 hours' talk time; 4 days' standby time; 47x108x19mm; 110g

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

T-Mobile's SDA (smart digital assistant) may not provide the ultimate 'Office in Your Pocket' experience, but it is a sleek-looking device that would suit anyone looking for a mobile phone that only occasionally needs to be smart.

Being a Windows Mobile-based smartphone, the SDA features applications such as Pocket Outlook, Instant Messenger, Internet Explorer and Windows Media Player. So you've got email, access to the internet and

entertainment on the move - allowing you to edit emails and maintain your calendar and contact data.

But those interested in so-called 'round-tripping,' where you're sent a document to edit and return before making that 2.30 appointment, should look elsewhere. T-Mobile customers might turn instead to the SDA's comparatively unwieldy big brother, the MDA (mobile digital assistant) Compact, which features Pocket Word and Excel.

The absence of a qwerty keyboard and touchscreen inevitably means the SDA is more geared up for receiving information, rather than extensive editing.

As a phone, however, it ticks most of the boxes. The SDA is tri-band GSM (covering Europe, the US and Asia) with GPRS, WAP and Bluetooth. Nor should battery life cause you to lose



any sleep - we managed to get three-and-a-half days' use between charges.

Using the SDA is a pleasure. Anyone used to the Sony Ericsson T630's flimsy controller will appreciate the confidence with which the SDA's five-way joystick flips through applications. And there's plenty of memory - 64MB of ROM and 32MB of RAM - plus a mini-SD slot if you require more.


A final caveat, which applies to any smartphone based on Windows Mobile 2003: you might want to hold on for the recently announced Windows Mobile 5.0 (see page 26). Upgrades include support for hard disks and persistent storage to retain data when the battery is depleted.

#### Verdict

If you want a mobile phone with infrequent - though perhaps essential - smartphone features, it's worth considering the SDA. If you're after a PDA/notebook replacement, look elsewhere. **Guy Dixon**



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## DIGITAL VIDEO CAMCORDER

### JVC GR-D240 **PCADVISOR GOLD**

**JVC:** 0870 330 5000  
**www.jvc.co.uk**  
**£229 inc VAT**

#### SPECIFICATIONS

800Kp CCD; DV recording to MiniDV tape; F1.8; 10x optical zoom; 720x576 still res; FireWire-out; A/V-out; S/video-out

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

We had to do a double take when we saw the high-street price of the GR-D240. At just £229, it's the cheapest DV camcorder we've ever seen. But there's a major reason for this - its FireWire port is output-only, as is the analogue video connectivity. But you do get a whopping 25x optical zoom for your money.

The name is a bit misleading, as the D240 in many ways has a reduced specification compared with the GR-D230 it nominally replaces (see issue 113, page 79). Its CCD is a 1/6in version rather than 1/4in, and has a resolution of only 800,000 pixels compared with the D230's 1.33Mp. But

this is a bit of a moot point, because the D240 can only capture still images to tape - it has no SD memory slot. For memory card stills capture, plus DV and analogue input, you'd need to opt for the GR-D290 instead, which costs £75 more.

The electronic features are pretty much the same as the D230. There's exposure control with six settings, and seven shutter settings from 1/50 to 1/4,000. However, the latter are curiously listed under the Program AE menu, alongside the usual presets.

The D240 bears some less positive resemblances to the D230 as well. While there's an input for an external microphone, there's no accessory shoe to attach it to. No headphone socket is supplied for monitoring audio input, either, and the tape loader operates from the bottom, making this a bad choice for a tripod.

But despite the smaller CCD, the D240's video performance is quite similar to the D230, and most other JVC camcorders in this price range.



Video quality in daylight was decent enough; image quality indoors less so. Low-light shooting was particularly poor, with an orange cast over footage taken under artificial illumination.

#### Verdict

Despite its drawbacks, the GR-D240 is unfeasibly good value. It's also marginally smaller and lighter than its predecessors. If you're looking for a digital camcorder at a rock-bottom price and don't need to record your video back to DV tape, the JVC GR-D240 is for you. **James Morris**

## WIRELESS MOUSE

### Interlink Presentation Pilot Pro

Presenting can be a daunting prospect to even the most seasoned PowerPoint user, so anything that makes it easier is to be welcomed. Enter the Presentation Pilot Pro - a simple wireless mouse with dedicated PowerPoint buttons.

Installation is a breeze - pull the USB receiver out of the remote and plug it into your PC. It's automatically recognised by Windows XP.

The large round button is a 360-degree mouse, surrounded by buttons for next and previous slide, blank the display and a laser pointer. There's a trigger underneath for left mouse click and a right-click button.

#### Verdict

The Presentation Pilot Pro provides a quick and easy way to navigate PowerPoint. Storing the USB receiver in the handset means you won't lose it, and even turns off the power to preserve battery life. **Will Head**

**Insight:** 0800 333 333  
**www.presentationpilot.com**  
**£44 inc VAT**

#### SPECIFICATIONS

2.4GHz operating frequency; four channels; laser pointer; 15m omnidirectional range; CR2025 coin battery; USB interface; Windows 2000/Me/XP

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++



## PDA WI-FI CARD

### Spectec SDIO wireless LAN card

A Wi-Fi connection is one of those things where you experience it for the first time, then can't imagine how you managed before.

The ability to surf, check email and chat on instant messenger wherever you've got coverage really changes the way you use the internet.

Spectec's SDIO (secure digital input/output) card can bring wireless wonderland to your PDA, provided it's up to spec - you'll need an expansion slot that supports SDIO and Windows Mobile 2003. Simply install the software and pop in the card. If you're in range you'll be prompted to connect to a wireless network.

We tested the card with a compatible HP Ipaq and found it provided good range despite its small antenna.

#### Verdict

If your PDA is up to spec and you want a wireless connection the Spectec is a compact, if slightly expensive, way of achieving it. **Will Head**

**Cables and Stuff:** 0800 358 8199  
**www.cablesandstuff.com**  
**£88 inc VAT**

#### SPECIFICATIONS

802.11b SDIO Wi-Fi card; requires SDIO-compatible PDA and Windows Mobile 2003; 24x2x39mm; 5g

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++







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## FLAT-PANEL

## Sony MFM-HT95

Sony: 020 7365 2947  
 www.sonymstyle.co.uk  
 £629 inc VAT

## SPECIFICATIONS

19in flat-panel; native res 1,280x1,024;  
 0.294mm pixel pitch; 467x185x401mm;  
 7.8kg; digital connector; 3-year onsite  
 warranty; 12ms response time

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

If any company has the style and flair to plant a PC monitor in every living-room, it's Sony. No screen better encapsulates this than the debonair

MFM-HT95. Its impressive casing is a long way from the dull TFT frames that proliferate elsewhere.

An extra clue to its multimedia ambitions is given by the built-in TV tuner and the presence of X-black technology to boost contrast and brightness.

This is the perfect melding of PC technology and televisual pizzazz.

Which, of course, brings us onto the PC technology itself. A 1,000:1



contrast ratio and 450cd/m<sup>2</sup> brightness hint at great things – this display is alive with visual splendour. It's also easy to tap into the many options using the remote control.

## Verdict

Other than the reflective screen – a direct light source could make it hard to see the picture – it's hard to fault the Sony MFM-HT95. Predictably, nirvana doesn't come cheap, but if you've got £629 to spare you can expect a quite glorious experience. ☒ Robin Morris

## FLAT-PANEL

## LG L1750H

Buy online at ebuyer.com  
 www.lge.co.uk  
 £206 inc VAT

## SPECIFICATIONS

17in flat-panel; native res 1,280x1,024;  
 0.264mm pixel pitch; 468x243x422mm;  
 6kg; digital connector; 3-year onsite  
 warranty; 12ms response time

**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

With its popular L1730S due to disappear shortly, LG is already taking the wraps off this new assault on the bargain-basement end of the

flat-panel market. But with stiff competition from the likes of Iiyama, can LG prove once again that less is sometimes more?

The L1750H isn't the most stylish of flat-panels, but it'll look significantly better than the slinkiest of CRT monitors – and it doesn't look like a cut-price model.

Neither will you find much compromise on specifications. The 500:1 contrast ratio is standard, and the 250cd/m<sup>2</sup> brightness rating is proficient.



Image quality is fairly assured, even if we still prefer the Iiyama ProLite E435S's picture (see January 05). Colours are bright and well defined, but we weren't so impressed with text.

## Verdict

The L1750H is another well-designed LG flat-panel offering a competent image at a good price. However, with the Iiyama ProLite E435S stalking through the undergrowth, this doesn't do quite enough to establish itself as the top deal. ☒ Robin Morris

## FLAT-PANEL

## Sharp LL-173G

Savastore.com: 0870 027 0900  
 www.sharp.co.uk  
 £244 inc VAT

## SPECIFICATIONS

17in flat-panel; native res 1,280x1,024;  
 0.264mm pixel pitch; 374x220x390mm;  
 5.4kg; digital connector; 3-year onsite  
 warranty; 12ms response time

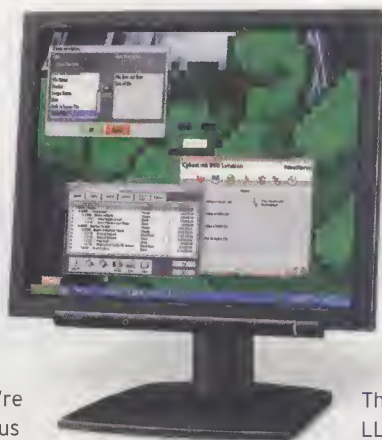
**BUILD QUALITY** ++++++  
**FEATURES** ++++++  
**VALUE FOR MONEY** ++++++

While other flat-panel makers fight to see who can rip the largest chunks out of today's TFT prices, Sharp has been content to take a different direction. The LL-172G

(see January 05) was relatively expensive, but overdosed on image quality. Now comes its successor, the LL-173G.

The LL-172G's biggest drawback was its lack of a DVI connector; this has been rectified. The Sharp is easy on the eye, even if we're not convinced by the bulbous control panel. And the menu system is well laid-out – the options include a choice of screen modes.

The Sharp's specifications aren't outstanding – the contrast ratio, at just 450:1, is particularly unimpressive



– but the image quality will alter your perceptions dramatically. Offering gorgeous colours with acres of depth and crisp, rock-steady text, this is a worthy successor to the LL-172G.

## Verdict

There was little wrong with the LL-172G, which is still available at some astonishing prices. However, should you need the very latest screen, this is an outstanding model. If you value picture quality above all, it's easily worth the extra price premium. ☒ Robin Morris

PCADVISOR  
GOLD

VIDEO-EDITING SOFTWARE

## Ulead VideoStudio 9.0

Element 5: 00 49 221 310 8830  
www.ulead.co.uk  
£50 inc VAT; upgrade £30 inc VAT

### SYSTEM REQUIREMENTS

800MHz Pentium III, Windows 98/Me/2000/XP; 256MB RAM; 4GB hard disk space; monitor capable of displaying 1,024x768 resolution

### EASE OF USE

+++++++

### FEATURES

+++++++

### VALUE FOR MONEY

+++++++

### OVERALL

+++++++

The arrival of VideoStudio 9.0, with its target audience ranging from newcomers to experienced editors, provides yet more evidence that the thin line between semi-pro and consumer-level video-editing is close to disappearing.

This version of Ulead's flagship program offers a trio of video-creation modes to cater for all movie directors, regardless of experience.

The program's new DV (digital video) to DVD Wizard mode, which reduces the video-authoring process to just a couple of steps, is particularly welcome. Although it's not the first ever automation wizard, Ulead's software provides the fastest way we've seen to produce a video DVD from scratch. This is thanks to the program's ability to quickly scan scenes from an attached DV camera.

You can view thumbnails to select the clips you wish to batch import, then decorate them with pre-built theme templates - intros, titles, music and menus. These might not be quite up to cinema standard, but they're easily good enough for amateur use.

VideoStudio's Movie Wizard is designed for newcomers. Its simplified interface limits editing to adjusting clip sequence and in and out points.

As with the DV wizard, this program can take the grunt work off your hands, automatically dumping badly shot or out-of-focus clips before applying theme templates - should you have selected the latter option.

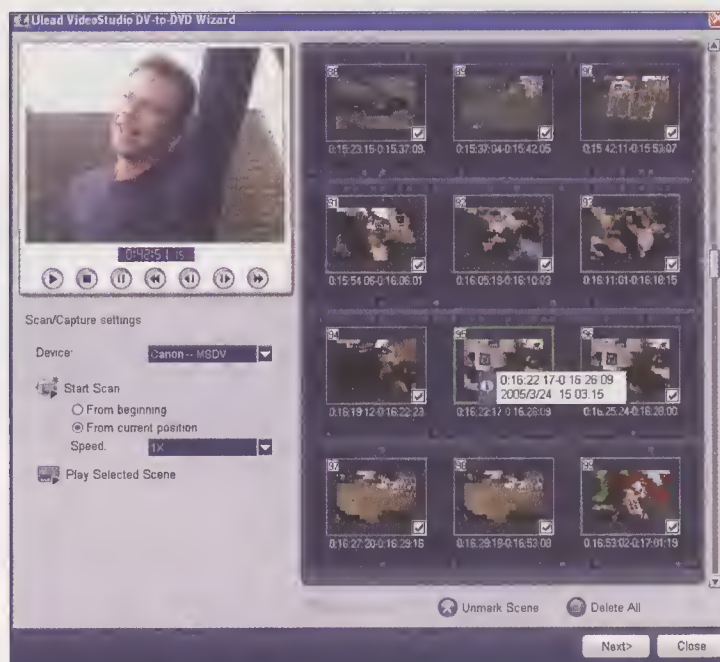
VideoStudio's Editor mode offers a more powerful, seven-step authoring process, wrapped in the traditional video-editing interface - a clip library on the right and a multi-track project timeline below.

As well as the standard storyboard and timeline views, an audio window lets you make visual adjustments to soundtrack and microphone levels. The Editor mode's capture options are comprehensive. Content can be culled from DV camera, DVD or disk, then added to the library using the same quick method as the DV wizard.

### Overlay! Overlay!

Equally notable is an extra video overlay track which supports transparency. At its most simple, this means you can add things such as logos on top of your main footage.

The most dramatic new feature here is support for Chroma key (see below). When you shoot a subject against a single-colour backdrop you can remove this so that the subject appears to be in the scene shown in the main video track. You have to spend time adjusting lighting for convincing results, though.



We haven't seen a quicker way of producing a home video DVD than VideoStudio's DV-to-DVD Wizard

Much more useful for everyday editing is the addition of Flash animation overlay clips. You can mask or frame the main video track this way.

As well as resizing clips to provide a picture-in-picture effect, you can distort video in the overlay track simply by dragging one of the nodes surrounding the clip. It works in real time and, sensibly, the video remains editable in its original dimensions.

As usual, VideoStudio 9.0 has managed to pack in some stunning transitions and effects. The pick of a pretty outstanding bunch is a sublime photo album transition that makes it look as though you're turning the pages of a book between clips.

Niggles and video-editing programs tend to go hand in hand, but here they relate only to interface issues such as odd button placement. And these flaws are overshadowed by ease of use elsewhere.

The program's versatility is especially marked when it comes to sharing video. Alongside standard export options, including DVD-Video Recording, you can now work in smartphone and PDA-compatible formats. It's a nice touch.

### Verdict

VideoStudio's increasingly polished wizards mean novices will get up to speed quickly. Even experienced moviemakers may be surprised at the results they can achieve with this powerful bargain. There's a lot more under the hood than you'd expect from a mid-range package and it's extremely good value. ☒ Tom Gorham

## Chroma therapy

One cool new feature of VideoStudio 9.0 is Chroma key. This mimics the technique used in television weather reports where a presenter is filmed in front of a blue background, which is subsequently filtered out by a compositing process and then replaced by a map.

You can achieve a similar effect using VideoStudio by filming your subject in front of a flat colour background and adding the footage to the Overlay track. In the clip's Attributes tab, simply select 'Apply overlay options' and choose Chroma key as the type. Choose the Sample tool and click it on the area to be made transparent, or select a colour matching the background from the palette. The background of the overlay should now disappear and the main video track will show through.

In general, we found it best to use a green or blue background. Using red tended to apply transparency to flesh tones. And don't expect spectacular results first time.



## ANTISPYWARE SOFTWARE

## Spyware Doctor 3.2

PC Tools: [www.pctools.com](http://www.pctools.com) (online only)  
£20 inc VAT

## SYSTEM REQUIREMENTS

Windows 95/98/Me/2000/XP; 32MB RAM;  
10MB hard disk space

## EASE OF USE

## FEATURES

## VALUE FOR MONEY

## OVERALL

+++++  
+++++  
+++++  
+++++

One of the irritations of modern computing is the fact that constant online interaction exposes your PC to a number of threats. Computer viruses have a long and ignoble history, aggravated greatly by the rise of the internet. A more recent and much greater annoyance is the growth of Trojans and spyware. These can monitor your actions and open your PC to malicious activity.

Such has been the spread of spyware that Microsoft has recently made freely available a beta of its own spyware stopper. And no-cost alternatives such as Lavasoft's Ad-Aware have done good work in this area for some time now. So why,

with such versions available, would anyone consider paying £20 for a copy of Spyware Doctor?

First of all, no freeware application provides real-time protection and having the Spyware Doctor icon in your system tray will bring extra peace of mind.

In addition, on a test PC that had regularly run the Microsoft and Lavasoft programs, Spyware Doctor still located some monitoring applets. These were removed without any trouble and they were fairly low-key net nasties - but they were there nonetheless.

This is one of the problems if you don't have real-time scanning facilities - although some antivirus software, such as later versions of Norton, now provide this.

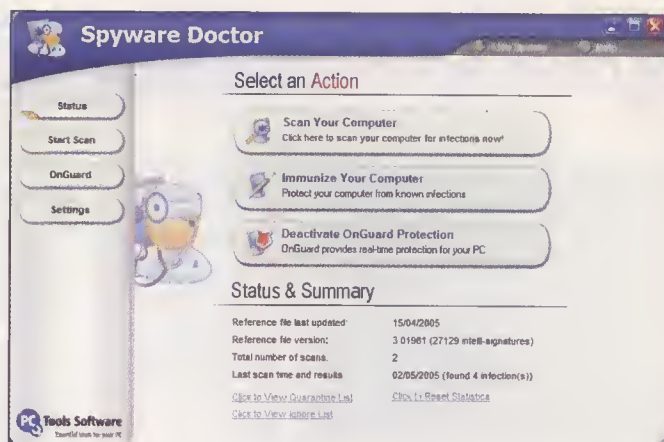
In addition to scanning your PC for malware, the program also provides checks against keyloggers (programs that record key presses) and phishing (attempting to obtain sensitive

**Spyware Doctor provides useful real-time protection tools and scanners to find and remove malware**

information by tricking the user). The latter is only fairly useful, because phishing programs rely on interaction - and that's difficult to protect against with software alone. You'll also find a pop-up blocker and cookie protection, although recent patches to Internet Explorer address both issues.

## Verdict

Spyware Doctor is a comprehensive program and, if you're short of protection, it's highly recommended. However, it's only slightly better than the free alternatives. So if you've got up-to-date antivirus it's probably overkill. **Jason Whittaker**



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- Secures instant messaging conversations
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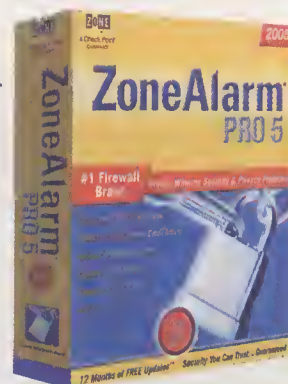
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## INTERNET BROWSER

# Opera 8.0

Opera: 00 47 2416 4000  
www.opera.com  
Free or £39 inc VAT for ad-free version

### SYSTEM REQUIREMENTS

Pentium processor; Windows 98/Me/2000/XP; 64MB RAM; 25MB hard disk space

EASE OF USE: ++++++  
FEATURES: ++++++  
VALUE FOR MONEY: ++++++  
OVERALL: ++++++

In the aftermath of the punch-up between Microsoft and Netscape over the fate of the browser market, it looked like it would take a very foolish company to challenge Redmond for control of the gateway to the internet. Fortunately, Opera provided just that competition – and for the first time in years, it looks as though another option could be worth the attention.

Key to the firm's latest release is a streamlined interface. The browser has always concentrated on additional features that seem indispensable as soon as you begin to use them, and these are still here. Some have been tidied up – the wealth of preference settings could be confusing – but some of the real innovations are still in evidence. Opera was the first browser to support tabbed windows, for example, and, although Firefox users will be used to this, its absence in Internet Explorer is one of Microsoft's less fathomable decisions.

### Mighty mouse

Similarly, mouse gestures – where you can move through pages by holding down the right key and moving your pointer left or right – soon become second nature.

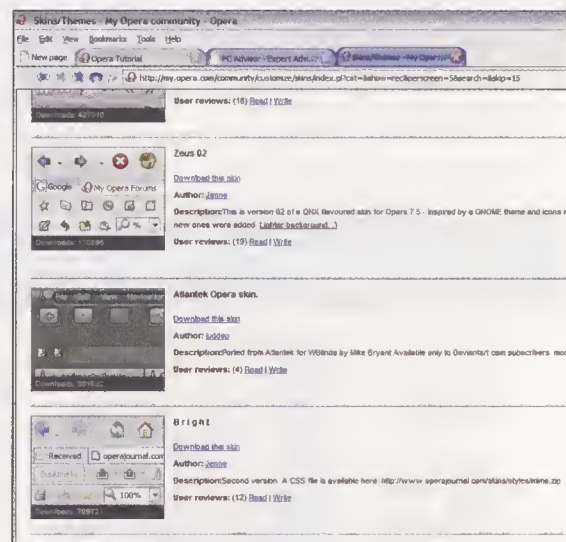
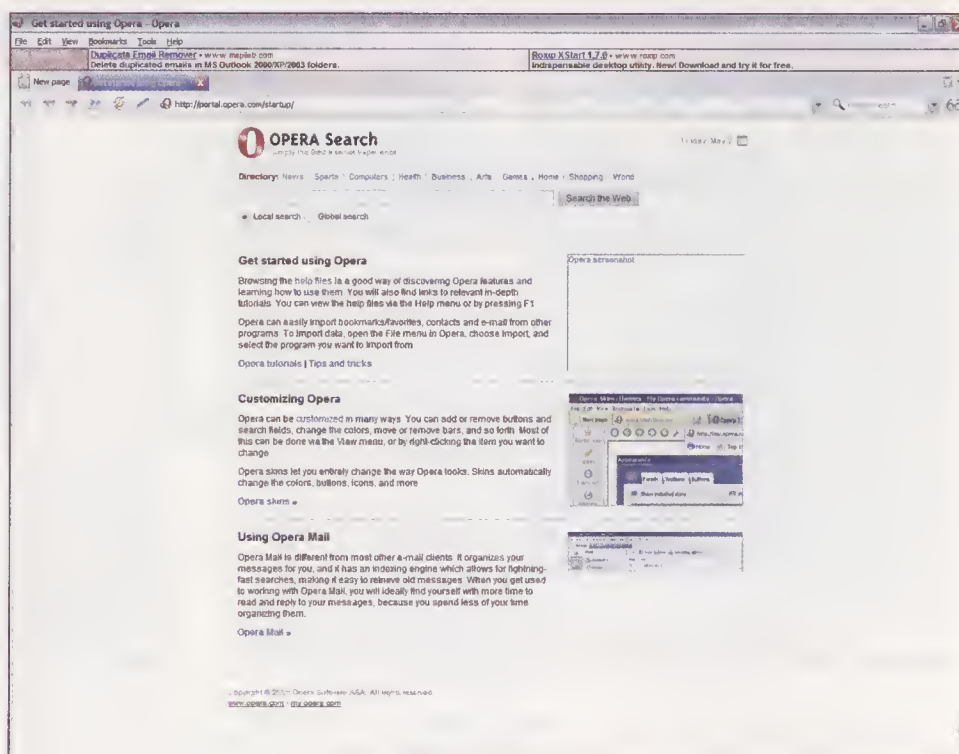
The interface gets a major overhaul for Opera 8.0 but additional new features include the Fit-to-

window option, which resizes pages so horizontal scrolling is not required, and better support for removing pop-ups. This is no longer all-or-nothing, as with SP2's amendments to Internet Explorer. You also get voice control.

One problem that used to affect Opera quite badly a couple of incarnations ago was its difficulty rendering certain web pages. While this may be the fault of developers, it was still a nuisance.

A development that's not new to version 8.0 but works well in this release is that the browser can now spoof itself as Internet Explorer (or Firefox). This appears to help when dealing with problematic pages.

Opera is a browser that's fast and secure, rendering instantly pages that can take a few seconds in other applications. If you want to delete private data, this is much better than the options available in



Top: the default version of Opera provides a streamlined interface that is very fast at rendering HTML documents

Above: you can customise Opera in a number of ways, from changing how toolbars appear, to skinning the entire browser

Internet Explorer. And clicking on the padlock icon for secure sites provides information about who operates the security certificate for them.

### Verdict

Opera 8.0 is a slick and fully featured browser. It is much faster than the competition and in general is recommended over any of them. There is only one thing that is not in its favour: every other major browser on the market is free, while Opera is the only one to pursue a dual option with a paid-for, no-ads version. In general, those adverts are easy to ignore if you don't want to shell out. In every other regard this is a superior piece of software. **Jason Whittaker**

## Browsing through the alternatives

News of millions of downloads of Opera 8.0 in its first weekend of release is unlikely to trouble Microsoft greatly, which still controls 90 percent of the market. However, there have been several releases in the past couple of years which, after a period of inactivity, suggest innovation is in the air.

Netscape Navigator is still available in version 7.2, but the Mozilla engine it is based upon has been put to better effect by Firefox 1.0, which also uses tabbed browsing. Finally, unless you are a Mac user with Safari, the remainder of browsers tend to be Linux-based or fairly obscure packages such as Avant 10.0 and Deepnet Explorer 1.3.



## ANTISPYWARE SOFTWARE

## Norton Internet Security 2005 AntiSpyware Edition

Symantec: 020 7616 5600  
 www.symantec.com  
 Price tbc

## SYSTEM REQUIREMENTS

300MHz Pentium II or higher; Windows 98/98SE/Me/2000/XP; 128MB RAM; 314MB hard disk space

## EASE OF USE

## FEATURES

## VALUE FOR MONEY

## OVERALL

++++++  
 ++++++  
 N/A  
 ++++++

Antivirus powerhouse Symantec takes aim at spyware with its beta of Norton Internet Security 2005 AntiSpyware Edition. The final version, expected in the next few months, will probably sell for about £50. However, early indications suggest that it may not be your best bet.

We found Norton's sleek interface easy to navigate and its option menus well organised. But Norton's threat reporting left us feeling paranoid and it's a resource hog, slowing older PCs to a crawl.

Testing it with a selection of common spyware and adware

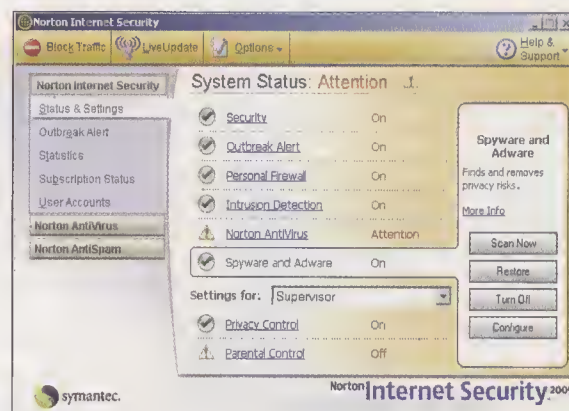
applications, the program accurately identified and blocked StartPage and Downloader Trojans. Results with our other electronic nasties were mixed. It ignored Total Velocity and Xupiter, but recommended that we not only accept Hotbar but allow it full internet access as well.

Another cause for concern: during installation, Norton enabled the Windows Messenger service and automatically assigned it full internet access rights without asking permission.

Many people specifically disable this service because it is widely abused by spyware creators, forcing pop-up advertising on to PC desktops.

Despite these flaws, Norton's beta did show promise. Long-time Symantec fans will no doubt embrace its all-in-one approach to security.

For the best overall protection, however, we'd recommend combining two separate products: Trend Micro's PC-cillin Internet Security Suite 2005



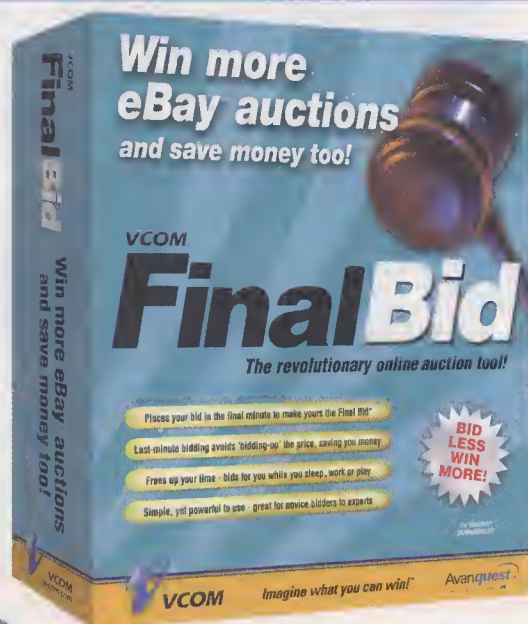
Norton's sleek interface is easy to navigate, well organised and provides comprehensive configuration options

for its virus protection, firewall and spam filtering, combined with Sunbelt Software's highly effective CounterSpy for spyware protection.

## Verdict

Confusing alerts put the onus on you to second-guess Norton's recommendations. But it's currently free and when the program removes spyware it does an efficient job. ☒ Mary Landesman and Spencer Dalziel

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## PC OPTIMISATION SOFTWARE

## PC Booster 4.0

inKline Global; 01959 578 346  
www.inklineglobal.com  
£20 inc VAT

## SYSTEM REQUIREMENTS

Pentium II processor; Windows 95 or later;  
64MB RAM; 10MB hard disk space

EASE OF USE ++++++  
FEATURES ++++++  
VALUE FOR MONEY ++++++

OVERALL ++++++

Getting better performance from your PC is a perennial problem. Who doesn't want their computer to work faster, without the need for expensive upgrades? PC Booster 4.0 is a software utility designed to deliver just such a performance hike - and all for the princely sum of £20.

It's not the only software of this type on the market, but it stands out because of its presentation. It really is simple to use, even for a novice.

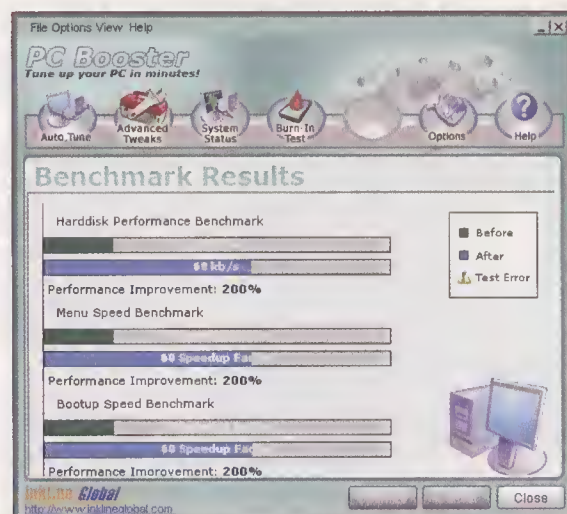
This is mainly because of the Auto Tune option. The default mode when you open up the program for the first time, this feature allows you to carry out simple optimisation at the click of a button.

When you start Auto Tune it automatically backs up your settings, just in case any of the tweaks make your system unstable. It then analyses your PC and compiles a list of 'recommendations'. You can view the list, but you don't get any say in the changes that are made.

Once you have run the tuning program, your system has to be restarted, after which you can view the before and after results. The fact that this performance test is provided by the maker of the software has pros and cons, of course - we'd be inclined to take its results with a pinch of salt.

Other options are easy to use, too, and the software provides plenty of information about the tasks you are going to carry out. It will check the stability of your CPU, recover any unused RAM so you get the most from your memory and conduct all the usual optimisation tasks, such as dumping old temporary files.

You can access all the extra adjustments, which apply to Windows, hardware and general performance,



PC Booster 4.0 provides you with before and after test results to show how much difference its tweaks have made

from the Advanced Tweaks section. These are generally more suited to slightly more savvy users, as there is little explanation as to what they mean, never mind achieve.

## Verdict

PC Booster 4.0 is a cheap and easy solution to some performance problems. It can keep you on top of how your PC is doing and help you carry out maintenance - but we didn't notice much difference after the Auto Tune. ☒ Ursula Seymour

## INTERNET SECURITY BUNDLE

## BitDefender 8.0 Professional Plus

BitDefender; 00 40 21 233 0780  
www.bitdefender.com  
£40 inc VAT

## SYSTEM REQUIREMENTS

Pentium MMX 200MHz processor; Windows 98/NT-SP6/Me/2000/XP; Internet Explorer 4.0 or higher; 64MB of RAM (128MB recommended); 40MB hard disk space

EASE OF USE ++++++  
FEATURES ++++++  
VALUE FOR MONEY ++++++

OVERALL ++++++

The speed with which an unprotected PC picks up malware from the internet is truly scary. Proper protection is no longer voluntary, hence the rise in popularity of security bundles that combine antivirus, firewall and spam protection. BitDefender is the latest such package to hit the shelves.

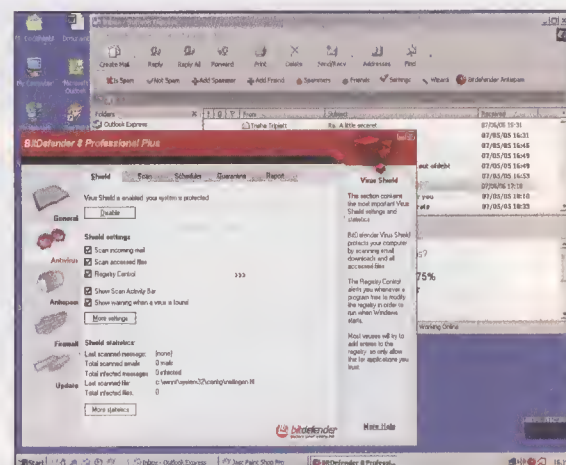
Its award-winning antivirus side is the strongest feature. It filters all the vectors viruses use to infect your system, checking downloads, email, peer-to-peer exchanges, network connections, CDs, ZIPs and USB keys.

The program can scan files on access, on demand or on schedule - BitDefender creates a tiny window called the File Zone on your desktop that indicates how many files have recently been scanned. You can drag and drop things in there if you want them checked out.

Email virus attachments that can't be cleaned are quarantined and one click sends them to BitDefender for analysis. The Live Update feature checks for new nasties either manually or at user-defined intervals.

The antispam module filters all POP3 accounts and integrates with Outlook and Outlook Express. Besides choosing from five tolerance levels, you can also opt to block emails containing Asian or Cyrillic characters or dodgy URLs. Unfortunately we found that it proved no more effective at blocking spam than many freeware alternatives.

BitDefender's firewall monitors only outbound internet traffic, controls cookies and blocks Registry



BitDefender offers an easy-to-use front end which presents a shallow learning curve to novices

hacks, malicious scripts and rogue diallers. It also alerts users when an application tries to access the internet.

We'd quibble about the price, but BitDefender comes with two years' of updates and each licence covers two computers - a desktop and laptop. You also get two years' of free upgrades.

## Verdict

The proverbial curate's egg - good in parts. The antivirus side can't be faulted but the spam and firewall are equalled by freeware. ☒ Roger Gann



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## VIDEO-EDITING SOFTWARE

## Serif MoviePlus 4.0

1 Serif: 0115 914 2000  
 2 www.serif.com  
 3 £60 inc VAT (upgrade £40 inc VAT)

## SYSTEM REQUIREMENTS

Pentium III processor; Windows 98 or later;  
 128MB RAM; 800x600, 24bit display; CD- or  
 DVD-ROM drive; 400MB hard drive space  
 (5GB of space may be required during the  
 composition and export of video projects)

EASE OF USE ++++  
 FEATURES ++++  
 VALUE FOR MONEY ++++

OVERALL ++++

Video editing for non-professionals appears to be the next big thing for software developers. They've recognised that increasing numbers of people own digital camcorders and want software that combines ease of use with top-quality results. Adobe has already jumped on to this bandwagon with Premiere Elements, a cut-down edition of its professional product. Now Serif has just released the latest version of its MoviePlus package.

MoviePlus has always been aimed at the everyday user, as is reflected

in the affordable price tag, £10 cheaper than Adobe's product. And this version features several powerful enhancements.

Serif has developed a new rendering engine that it says makes this the fastest video-editing package on the market - at any price tag.

While we can't verify this, it's certainly rapid. Another addition unique to this package is advanced scene detection. This automatically splits a video clip into natural segments.

MoviePlus hasn't overlooked the less technical end of the market. It's packed with simple tools to create impressive slideshows from still images. And you can add a soundtrack, effects and titles to make your show that bit more compelling.

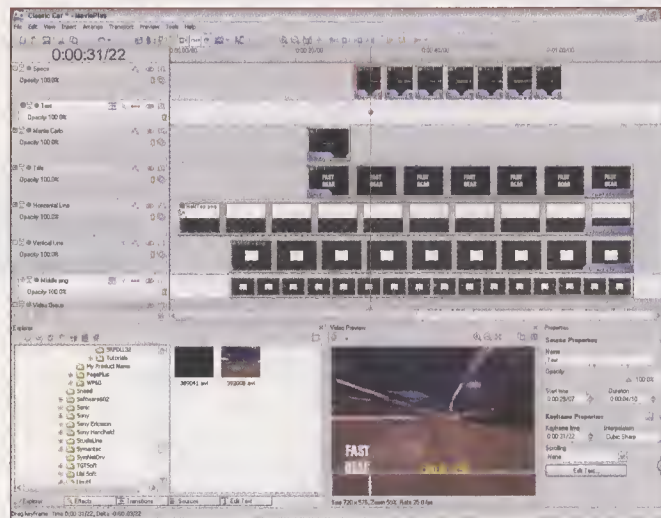
So far so excellent, but we don't think MoviePlus caters for amateurs as well as Adobe's Premiere Elements. For one thing the interface is more

MoviePlus 4.0 allows you to view changes to your footage in real time

cluttered and confusing. We also felt that the tutorials weren't quite as easily accessible.

## Verdict

While MoviePlus is certainly easier to use than a professional product, it simply isn't possible to make video editing pain-free. Users are confronted with so many options that first-timers are likely to feel overwhelmed. And the tutorials aren't interactive. **X Ursula Seymour**



## AUCTION MANAGER

## SuperSeller for eBay Pro

1 Phoenix Global Software:  
 0870 240 4494  
 2 www.phoenixglobalsoftware.co.uk  
 3 £60 inc VAT

## SYSTEM REQUIREMENTS

500MHz Pentium III; Windows 98SE/  
 Me/2000/XP; 128MB RAM; high-colour  
 16bit graphics card with 8MB RAM;  
 1,024x768 resolution; 200MB hard disk  
 space; CD-ROM; internet connection with  
 POP3 email; valid eBay membership

EASE OF USE ++++  
 FEATURES ++++  
 VALUE FOR MONEY ++++

OVERALL ++++

It might sound odd, but some people actually make a living buying and selling stuff on eBay. Commercial outfits that do this will already have their management systems, but for the serious amateur running multiple auctions can pose a real headache. Which is where SuperSeller comes in.

The Pro version of SuperSeller is a certified eBay-compatible application that helps you create and post eye-catching auctions. It also automates correspondence with auction winners

and many other admin chores, including invoicing, inventory management and profit tracking. In other words, it's a self-contained eBay-specific accounts-come-e-commerce system.

Helpfully a wizard walks you through setup and helps you create auctions. It has a simple interface, but you'll need to have quite a lot of information to hand before you start.

It's easy enough to design a flash-looking auction, using the 200 or so (slightly cheesy) templates or starting from scratch. Completed auction pages can then be uploaded via eBay, which is expensive, or free, via FTP. You can also host auction images on any spare web space you've got. Once your auctions are online SuperSeller Pro keeps track of any progress by checking your email for bids.

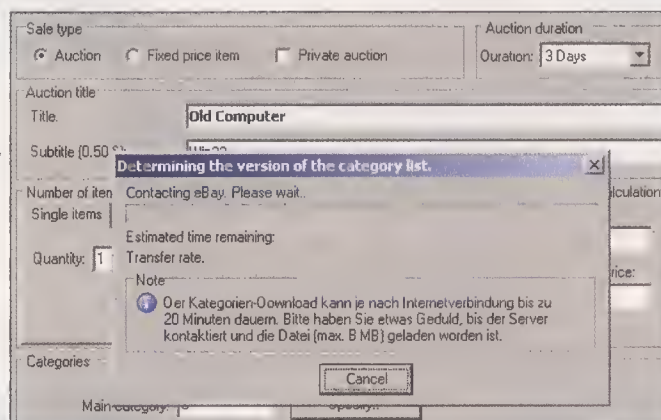
Admin is fairly complicated, but this should come as no great shock as, in essence, this is a business tool

Sprechen Sie Deutsch? An example of the poor localisation you will find in SuperSeller Pro

with many similarities to accounting software. To get the most out of it, you'll have to invest some time and effort. And be prepared for the added difficulty of German text littering the program - the software was authored by a German vendor, Data Becker.

## Verdict

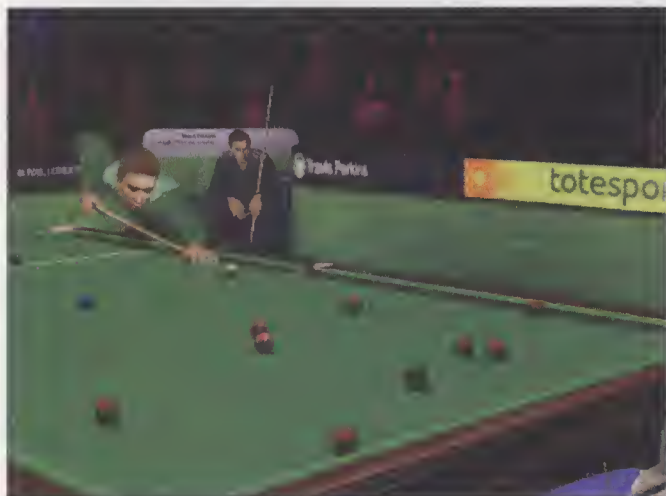
The basic features of SuperSeller Pro are on a par with eBay's own free Turbo Lister, which is fine for low volumes. But if you flog a lot of stuff and don't mind the learning curve, SuperSeller Pro could make your life easier, albeit at a price. **X Roger Gann**





SPORTS SIMULATION GAME

# World Championship Snooker 2005



HIP: 020 7808 7097  
 www.sega-europe.com  
 £25 inc VAT

## SYSTEM REQUIREMENTS

800MHz Pentium III or higher; Windows  
 98SE/Me/2000/XP; 128MB RAM; 3D Video  
 accelerator card with 32MB of memory;  
 1.4GB of hard disk space

OVERALL **+++++X**

Pot red, pot  
colour, repeat

Snooker seems to be moving into a new era. An unfancied 22-year-old qualifier wins the World Championship, then Sega takes over the publishing rights to Codemasters' successful snooker series.

World Championship Snooker 2005 isn't much of an improvement on previous versions. The physics of the game are still jaw-droppingly realistic and control over shots is better. However, it's harder than its predecessors, with crueller pockets, less helpful aiming aids and better AI (artificial intelligence) opponents.

I found it took a lot longer to make any kind of progress than in the past - having to qualify for each tournament is difficult enough, but as soon as you come up against a top-16 opponent, you're pretty much finished. I appreciate that snooker is a difficult sport, but I don't really want to play a game that takes 10 hours of practice a day for years before I'm any good at it.

The character animations still look rather strange and

jerky and many players don't bear much of a resemblance to their real-life counterparts.

The commentary has improved, with Messrs Davis, Virgo and Parrott all chiming in with their advice and criticism, but as with most sports games, it gets tedious to hear the same phrases over and over.

There's a plethora of extras, including pool and unlockable video clips. Should you get really good at this game, you'll be allowed to compete against past players in the Champions Trophy but, sadly, I don't think I'm ever going to get that far.

## Verdict

Overall, World Championship Snooker 2005 is a decent game, but not enough has been done in terms of gameplay to distinguish it from the 2004 version. It's also a bit too difficult to play for my liking, although others may relish the challenge. Personally, I think I'd rather go down to the snooker hall for a couple of pints and a proper game.

Ben Camm-Jones



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PCADVISOR  
GOLD

STEALTH GAME

## Splinter Cell Chaos Theory

Ubisoft: 01932 838 230  
www.ubi.com/uk  
£30 inc VAT

### SYSTEM REQUIREMENTS

2GHz Pentium III processor or equivalent;  
Windows 98/2000/XP; 256MB RAM; 64MB  
graphics card; 3GB hard disk space

### OVERALL

+++++++

Airport fiction. Dontcha just love it? Caught short before your flight. Pop into the newsagents. Scan shelves. Stephen King. Andy McNab. Jilly Cooper. Ah: Tom Clancy.

More techno-bunkem than you can shake a stick at, brute force and exotic locales drenched in a sweaty machismo only employed by men with unfeasibly large cojones. The absolute antithesis of my daily life. Perfick! Only don't read the books - play the games, for they are sublime. Especially this one.

Splinter Cell Chaos Theory is a dark yarn about international espionage with characters and plot lifted straight from B-movie central. But it matters not. What counts is the

stealth-based gameplay and how many ways Sam Fisher, the main protagonist, can take down those guards.

Graphically impressive, Chaos Theory has more shades of gray than a Dulux colour range, but the art direction is so clear that you never lose sight of what a beautiful game this is. Indeed, Chaos Theory's love of light and shadow pitches it closer to Doom 3 and German expressionism than its closest competitor, the Metal Gear Solid series.

And credit where it's due to Amon Tobin, for creating soundscapes that marry audio and visuals better than I've seen in any title.

Chaos Theory gives you a lot more freedom than its predecessors. Indeed purists might balk at the diluted gameplay and loss of tension. But the pièce de résistance, the new



Whatever you do, don't spill Sam Fisher's pint

co-operative online mode which lets you play maps with an Internet buddy, is a touch of genius.

### Verdict

This is a rampantly high-quality offering. It's great to see the co-operative mode put to fine use. In fact, Chaos Theory is so good it almost made me pick up a Tom Clancy novel. And there's no higher praise than that. ☒ Spencer Dalziel

PCADVISOR  
GOLD

FIRST-PERSON SHOOTER GAME

## Brothers in Arms: Road to Hill 30

Ubisoft: 01932 838 230  
www.ubi.com/uk  
£30 inc VAT

### SYSTEM REQUIREMENTS

1GHz Pentium III or AMD Athlon; 512MB  
memory; Windows 2000/XP; DirectX  
8.0-compliant 32MB video card; 16bit  
sound card; 5GB hard disk space

### OVERALL

+++++++

War is Hell. I know this because I have been playing Brothers in Arms: Road to Hill 30, a WW2 shooter with bags of realism and more than its fair share of killing. Let me put it this way: if you've seen the first 20 minutes of Saving Private Ryan you'll have some idea of what to expect.

You take the role of Matt Baker, a reluctant and frankly rather whiny US paratrooper dropping onto France on the morning of D-Day. It's fair to say he's a glass-half-empty sort of chap - get ready for a lot of bellyaching at the beginning and end of the chapters. You have to piece together your squad, get kitted out and fight your way to the battle of the title.

Everything about this game screams authenticity, from the glowering Normandy skies to the paranoia-inducing background explosions. There's some good Yankee banter, too, and the requisite quantity of angry swearing, if that's your thing (it is mine).

The gameplay is pleasingly intuitive, becoming second nature in no time. Controls vary between first-person shooter and strategic squad play, but it's easy enough to keep track of who's doing what. And there's a time-freezing 'situational awareness' mode so you can look around and make plans.

One thing to get used to is the little red circles above your enemies' heads which change colour as they come under fire - once it turns grey that enemy is suppressed and will keep his head down. You also need to grasp the fact that men behind cover are really hard to kill - you won't find sniper rifles round every corner for Unreal Tournament-style 1,000-yard



Blood is murder to get out, you know

head shots. In other words, you have to get tactical: tell your comrades to lay down a suppressing fire, and sneak round the side. Easy.

There are a couple of problems. I struggled to find the mouse inversion toggle at first, but maybe that's just me. And the storyline gets a bit cheesy at times. But what were you expecting - Proust?

### Verdict

Don't be put off by the war clichés. Brothers in Arms: Road to Hill 30 is great - immersive, tricky and frighteningly realistic. Fall in, soldier. ☒ David Price



## FIRST-PERSON SHOOTER GAME

# Pariah



2 HIP Interactive Europe: 020 7808 7097  
3 www.hip-europe.com  
3 £30 inc VAT

### SYSTEM REQUIREMENTS

1.4GHz Pentium 4 or equivalent; Windows 98SE/2000/XP; 256 MB RAM; 32MB graphics card; 2.5GB free disk space

### OVERALL

+++++X

This won't hurt a  
bit, I promise

Most of the jobs that real people do simply wouldn't work for computer game characters. Can you honestly imagine anyone buying Sim Accountant, Librarians in Arms or Pro Evolution Sub-editor? Sadly not.

But here comes hope for white-collar heroes in the form of Pariah, a first-person shooter with a gun-totin', bone-choppin' doctor as the protagonist.

Medical man Dr. Jack Mason has been found guilty of professional misconduct, so his bosses have given him a new job, which mainly involves riding around in a plane with a frozen woman who's been infected with a horrible disease.

When the plane crashes near some remarkably low-security prisons, Jack has to get violent to stop the infection being passed on. Presumably it beats writing prescriptions and asking people to say 'ah'.

Pariah is a great-looking if derivative piece of work - check out those Halo landscapes and vehicles, for a start. It plays nicely, particularly when you're chucking grenades and sending convicts flying through the air. The guns make a satisfying racket, too.

The game drops a few marks, however, on the all-important annoyance factor, triggered in this case by impassable scenery that looks like you ought to be able to jump over it and a shortage of ammunition.

Instead of bullets, you seem to spend all the time picking up medical supplies, which allow you to heal yourself between bursts of combat. But this means that firefights don't feel dangerous - it's only when the ammo runs out that you're in trouble.

But if I dwell on the quibbles rather than the (many) aspects of this game that you will love, it is only because of the lingering feeling that I have seen it all before. Pariah is not a particularly original game, but it is a thoroughly enjoyable one - and that's the main thing, isn't it?

### Verdict

Looks good, sounds good, plays well, has an interesting storyline - so what's the problem? Well, nothing really, except that playing Pariah is likely to give you a strong sense of déjà vu if you've ever had a go on Halo. And whether that's a problem is up to you and your gaming history. ☒ David Price

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- Sony Floppy Disk Drive
- 16 x 48 DVD/CD ROM Drive
- Creative Labs Audigy2 ZS 7.1 Digital Soundcard
- Hyper 525 Watt Triple Fan "Silent" Power Supply
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# *right upgrade,* right now

Whether you want to boost an elderly PC's memory or soup up a newer system for gaming, it needn't be costly or difficult. Ben Camm-Jones shows you how to improve your setup

Given the pace at which technology changes, you could be forgiven for thinking that owning a PC is all about keeping up with the Joneses. But forget what the neighbours think - the components you need depend on what you use your PC for and, often, that won't require the latest, greatest kit. Want a visual upgrade but don't need to have quick-fire gaming? Buy a graphics card with less memory. Got loads of digital media files? Put a large hard drive on your shopping list, but buy an internal model and you'll save heaps. And if creating home DVD movies is your thing, an optical drive is a must - though you don't have to choose the latest LightScribe model.

Over the next few pages we'll expand on these and other options, taking a look at the unique needs of different users and pointing you in the direction of hardware that can improve the performance of any PC without burning a hole in your pocket.

## The compatibility test

Before you buy any new components, make sure they are going to be able to communicate with other pieces of hardware in your existing setup. The motherboard - the nerve centre of your PC to which all components are attached - is the most critical part of this. We're not going to describe again how to upgrade a motherboard (you can read the workshop in our July 05 issue for that) but you should find out what model yours is.

To do this, open up the casing of the PC and have a look inside - usually the motherboard will be marked with the manufacturers' name and a code. If not, try a handy freeware application called CPU-Z (from [www.cpuid.org/cpuz.php](http://www.cpuid.org/cpuz.php) or the cover disc). Once loaded, it can tell you what type of motherboard is in your system as well as information about the PC's memory and processor.

## Cheap as chips? You're having a laugh...

Speaking of the processor, the cost of upgrading this particular component is not far off the price of a new system, so it's probably not worth it. To find out, look up your motherboard model on its manufacturer's website for a list of compatible processors.

If you don't have at least a Pentium 4 processor running at more than 2GHz, or an Athlon XP chip, upgrading is pretty pointless. Bite the bullet and buy a new system if you want to make the most of your computing experience. And it goes without saying that XP Pro or Home should be the operating system of choice - it's the most stable and user-friendly version of Windows Microsoft has made so far.

Another word of warning before you begin to upgrade: many vendors will tear up your warranty if they find out you've been changing components. In some cases even just opening up the system will render your cover void.

If you're choosing a new graphics card for your PC, make sure it's going to be compatible with your motherboard



## Installing memory, PCI device cards and graphics cards

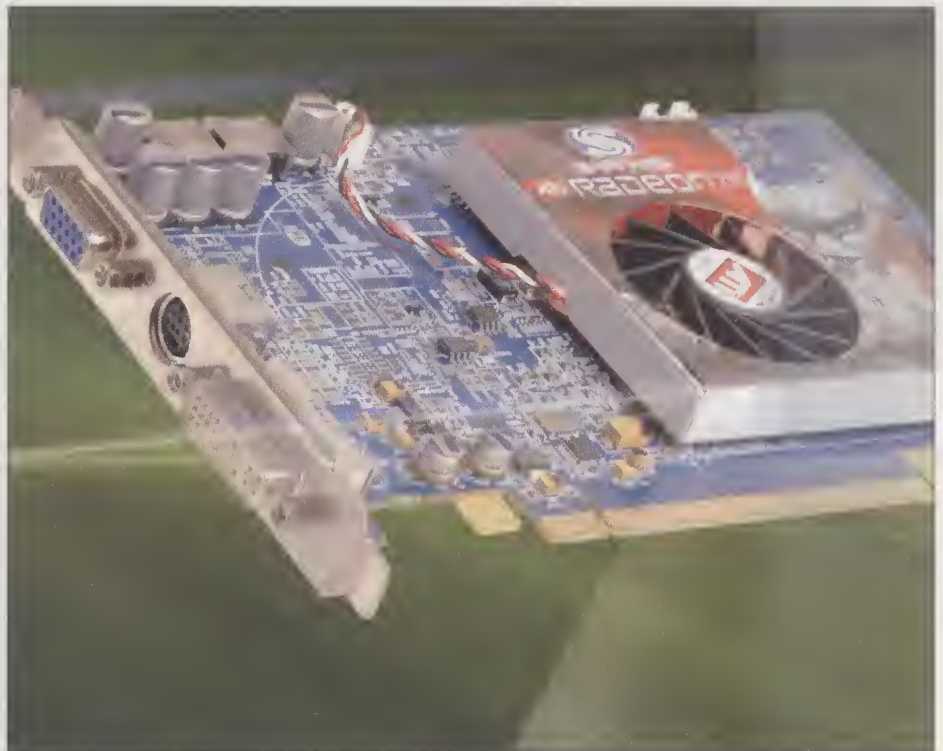
**1** Once you've switched off and unplugged your PC, don your antistatic wriststrap and you're ready to go. Arm yourself with a screwdriver if you're inserting a graphics card or PCI device card - this tool is only necessary for opening up the casing if you're merely replacing memory modules

**2** Place the PC on its side. On a table is best. If you put it on the floor, choose a non-carpeted room or you'll run the risk of static damage. Open the casing and remove the side panel

**3** Now get your bearings. Memory modules will be located close to the processor, almost bang in the middle of the motherboard. PCI slots are at the back of the PC, running parallel to each other. There will be at least three of these. Above them, depending on your motherboard, will be either an AGP slot or a PCI Express slot

**4** You'll find that there's only one way to fit any of these devices. If you're putting something into one of the PCI, AGP or PCI Express slots you'll need to make sure that the small back-panel has been removed from the PC casing so the card will fit and the connectors can be accessed. With memory modules, consult your motherboard manual, if you have it, to see what configuration they should be in and simply push them into the slots. The modules should fit easily and the clips at either end should firmly secure themselves

**5** Once the card or module is firmly seated, close the case, set up the PC again and power up. If any drivers need to be installed do so now. Windows XP will prompt you for the necessary discs that were supplied with the new component



You don't need to be a particularly competent PC user to carry out the upgrades described here, but do bear in mind that you'll be invalidating the warranty whether you do it yourself or take your PC to a local dealer.

### Safety first

Finally, remember to take sensible precautions to ensure no harm comes to you or the components while you're upgrading. Wear an antistatic wriststrap or ground yourself on an earthed metal object such as a radiator. Never open up the casing and touch the insides when the PC is still plugged in, even if the power is switched off.

### Thanks for the memory

If you've followed the IT industry in recent years, you'll be aware that the price of memory modules varies wildly. You'll also know that there are loads of different types and speeds of memory available. It's important that you choose the right modules for your computer.

Fortunately, the major vendors make it easy to find out what type of memory is compatible with your system so you don't need to bother finding out whether you need SDRAM, DDR, DDR2 or Rambus. Crucial Technology ([www.crucial.com](http://www.crucial.com)) leads you step by step through the process of finding out which modules you can use. If that weren't enough, there's a system scanner on its website that'll automatically detect your PC's setup and tell you what upgrade it needs.

At Kingston's home page ([www.kingston.com](http://www.kingston.com)) you can specify the system you have and let it tell you what'll fit in it. At Corsair's site (<http://compatible.corsairmemory.com>) you can do a similar search or request a compatibility report, which will be emailed to you.

Top: installing a new graphics card isn't difficult. Just follow our safety tips so you don't harm any components

Right: Drives which use LightScribe technology, such as the Philips DVDR16LS, burn data and labels to DVD discs





**All-round improvement**

That loyal old PC is starting to lose its edge. You don't want to throw it on the scrapheap, but how can you make it feel young again?

Upgrade	Recommended product	Price (inc VAT)	Supplier	Telephone number	Website
1. DDR RAM	Kingston 512MB DDR400 PC3200 module	£70	Dabs.com	n/a	www.dabs.com
2. DDR2 RAM	IBM 512MB DDR II 400MHz PC3200	£75	WStore	0870 011 3310	www.wstore.co.uk
3. Ultra ATA HDD hard drive	Samsung Spinpoint P80 80GB	£39	Dabs.com	n/a	www.dabs.com
4. Serial ATA hard drive	Seagate Barracuda 7200.7 80GB	£45	Dabs.com	n/a	www.dabs.com
5. Sound card	Creative Audigy2 ZS Platinum Edition	£113	PC World	0870 242 0444	www.pcworld.co.uk

**Video star**

Those terrible Michael Winner ads have convinced you that you can do a better job. You've got the visor and the folding chair, but how to turn your PC into an editing suite?

Upgrade	Recommended product	Price (inc VAT)	Supplier	Telephone number	Website
1. Large hard drive	Hitachi Deskstar 7K400	ultra ATA = £180, serial ATA = £180	Dabs.com	n/a	www.dabs.com
2. 8X AGP graphics card	Sapphire Radeon X850 XT PE	£347	Komplett	0870 872 7107	www.komplett.co.uk
3. PCI Express graphics card	Sapphire Radeon X800 XL	£211	Komplett	0870 872 7107	www.komplett.co.uk
4. DVD writer	Philips DVDR 16LS	£60	Philips	0870 601 0101	www.philips.co.uk
5. Software	Ulead VideoStudio 9.0	£50	Ulead	n/a	www.ulead.co.uk

**Recording artist**

It's time to admit it: Betamax was not the best choice. Here's how to make your PC a TV/PVR.

Upgrade	Recommended product	Price (inc VAT)	Supplier	Telephone number	Website
1. Large hard drive	Hitachi Deskstar 7K400	ultra ATA = £180, serial ATA = £180	Dabs.com	n/a	www.dabs.com
2. TV tuner card	ADS Technology Instant TV DVB-T PCI	£62	Dabs.com	n/a	www.dabs.com
3. 8X AGP graphics card	Sapphire Radeon X850 XT PE	£347	Komplett	0870 872 7107	www.komplett.co.uk
4. PCI Express graphics card	Sapphire Radeon X800 XL	£211	Komplett	0870 872 7107	www.komplett.co.uk
5. DVD-writer	Philips DVDR 16LS	£60	Philips	0870 601 0101	www.philips.co.uk

**Game on**

Look, it's not you – it's the PC that's letting you down. Don't worry, with a few tweaks you'll be able to keep the kids off the scoreboard once more.

Upgrade	Recommended product	Price	Supplier	Telephone number	Website
1. DDR RAM	Kingston 512MB DDR400 PC3200 module	£70	Dabs.com	n/a	www.dabs.com
2. 8X AGP graphics card	Sapphire Radeon X850 XT PE	£347	Komplett	0870 872 7107	www.komplett.co.uk
3. PCI Express graphics card	Sapphire Radeon X800 XL	£211	Komplett	0870 872 7107	www.komplett.co.uk
4. CRT monitor	Iiyama Vision Master Pro 454	£240	Dabs.com	n/a	www.dabs.com
5. Flat-panel display	Sharp LL-191A	£250	DigiUK	01386 556 633	www.digiuk.com

**Hot shot**

After reading PC Advisor's photo FAQs (page 96) you're now a photographic genius. But how best to store all those images?

Upgrade	Recommended product	Price (inc VAT)	Supplier	Telephone number	Website
1. Large hard drive	Hitachi Deskstar 7K400	ultra ATA = £180, serial ATA = £180	Dabs.com	n/a	www.dabs.com
2. Memory card reader	Shuttle USB2 6-in-1 internal card reader	£22	Dabs.com	n/a	www.dabs.com
3. DVD writer	Philips DVDR16LS	£60	Philips	0870 601 0101	www.philips.co.uk
4. Software	Google Picasa 2.0	free download	Google	n/a	www.picasa.com/index.php
5. USB/FireWire card	Belkin Hi-Speed USB 2.0 and FireWire PCI card	£26	Watford Electronics	0871 666 1616	www.savastore.com

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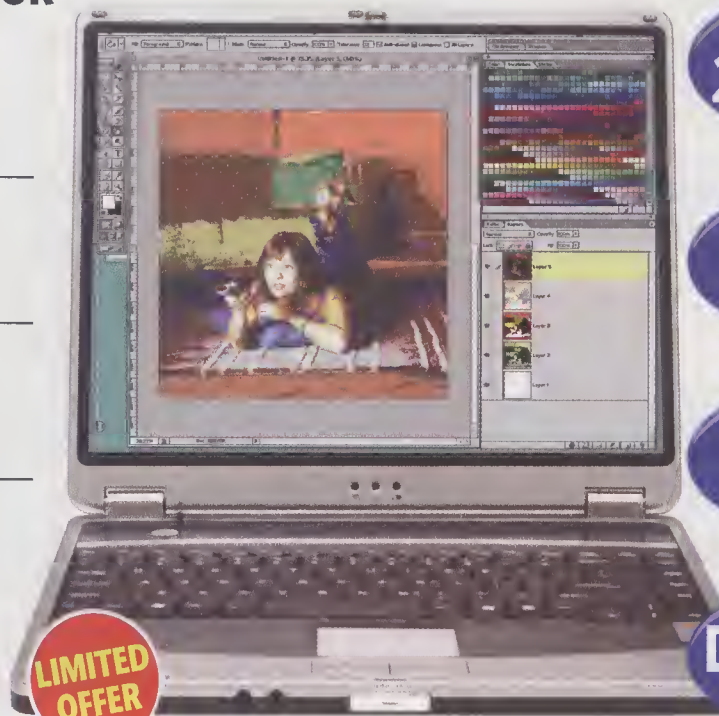
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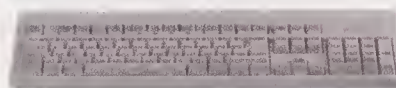
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## Installing a hard drive, new optical drives and a memory card reader

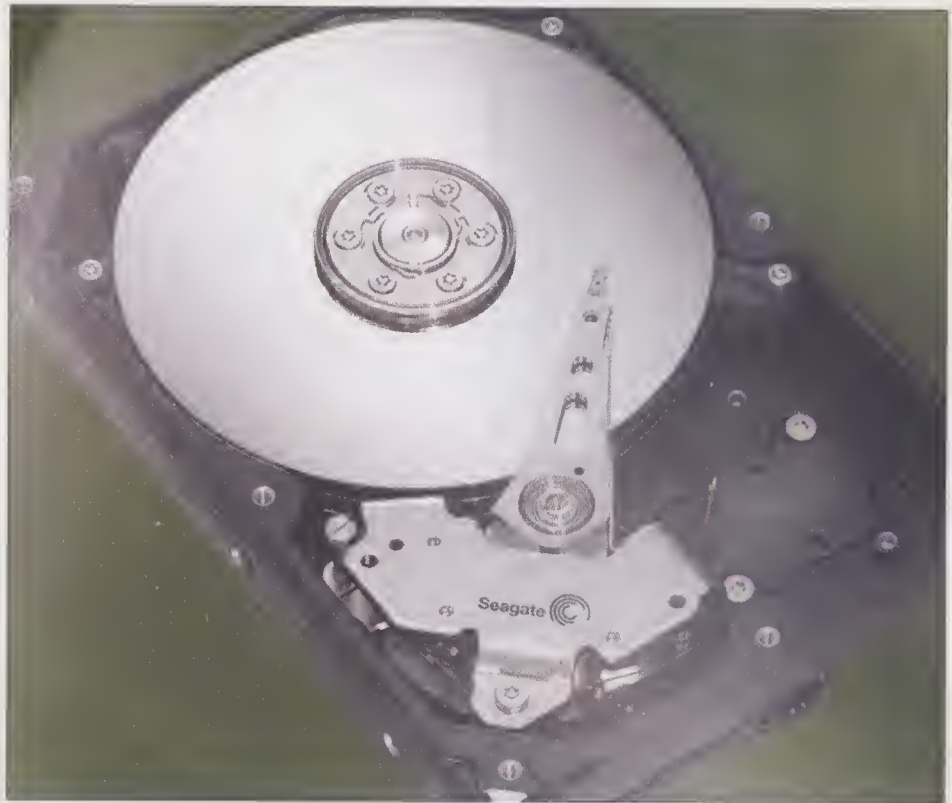
**1** Follow the safety tips on page 90, then open the PC's casing and decide where the drive is going to go. In the case of the hard disk, there'll probably be space somewhere by the existing drive. You may find you need to open up both sides of the case to screw in the new hard drive

**2** A new optical drive will probably make the old one redundant - for instance, we recommend you get rid of any CD-RW drive as a DVD writer can burn CDs too. However, if you have a DVD reader, keep that because having two drives that can access such media will make it easier to create copies. If you have a spare 3.5in slot on the front of your PC, remove the panel covering it and slot in the DVD writer; do the same if you're adding a 3.5in card reader



**3** All the devices need to be hooked up to the power supply. There should be plenty of free connectors dangling loose inside the case and your new drive will only slot in one way, so don't worry about getting this step wrong. Ultra ATA hard drives and DVD writers will connect to a wide-ribbon cable - again, something you should find hanging loose in the case. And the red wire connects to pin 1 on the back of the drive

**4** With both hard drives and DVD writers you need to check the jumper settings of the existing and new models - you can only have one hard drive and one optical drive set as the Master, so the other must be the Slave. The manual provided with the drives will show you how to do this



### Numbers game

RAM isn't just about megabytes. Sure, you'll need a decent number of them - 512MB is a minimum, with 1GB preferable - but memory bandwidth is also important. PC3200 or DDR400 modules are faster than their PC2700 or DDR333 equivalents, for example.

There's no sense in going for the faster type of memory if the motherboard can't handle it, but you want it to be as rapid as possible. The net result of adding more memory to your system will be smoother applications and increased multitasking capabilities. Of course, it's not going to make your processor run any faster, but it will allow you to get the best out of it. To learn how to install RAM modules - see *Installing more memory, PCI device cards and graphics cards*, left.

Top: a high storage capacity hard disk drive will hold plenty of digital media files - essential if you want to record TV programs

### Give me space

Adding a second hard drive to your PC will give storage capacity a real boost. You can never have too much space, but it's particularly useful if you want to save a lot of large digital files - say, if you're planning to use your PC as a PVR (personal video recorder). If you've a spare 3.5in drive bay, consider fitting a multiformat card reader so your photos can be copied straight to your PC.

Any system less than three years old will use either the Uata or SATA (ultra or serial advanced technology attachment) interface to connect the hard drive to the motherboard. The former isn't quite as quick and, although most users wouldn't notice this when double-clicking on the average document, opening a larger file is a different matter. Unfortunately, if your PC uses Uata you're not going to be able to change to SATA.

### Hard choices

Hard drives are cheaper than ever right now, so make sure you shop around to find the best deal available.

What you choose depends on your storage needs - if you use your PC for video editing, the bigger the better, as digital movie files take up a lot of space. You won't need as much if you're just looking to boost the all-round spec of your system, but it's always a good idea to get as much as you can afford.

After a quick scout round the web, we managed to find a Samsung Spinpoint P80 Ultra ATA 80GB hard drive at Dabs.com for £39 including VAT and an 80GB Seagate Barracuda 7200.7 SATA drive for £45 inc VAT.

Both the SATA and Uata versions of the 400GB Hitachi Deskstar 7K400 cost £180 inc VAT. That works out at less than 50p per gigabyte.

Installing a second hard drive should be well within the capabilities of a most PC users. For more details of how to do this see the boxout, left.

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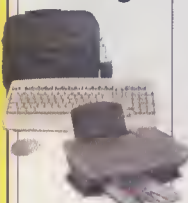
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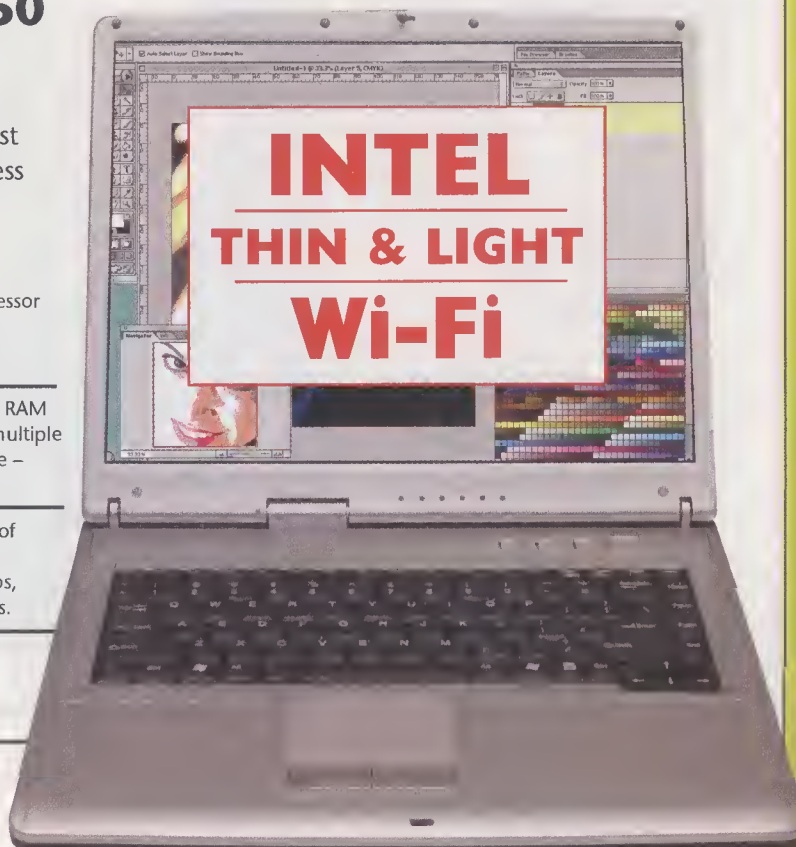
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Right: make sure you're wearing your antistatic wriststrap before you open the PC case. Locate a free PCI slot for the TV card and push it in carefully but firmly. Fasten the screws and you're ready to go



Below, left to right: check the jumper settings on your existing hard disk and the one you plan to install. Then hook it up to the power supply; the cables to connect it to the motherboard should come with the drive



Left and right: adding more memory will aid the smooth running of your applications and is one of the cheapest and simplest upgrades you can perform



Right: increase your connectivity options by installing a PCI USB2.0/ FireWire card. If you don't have a PCI slot then you can always invest in an external USB hub for around £20



Continues overleaf...

### Going gaming?

If you're keen on playing games then you have probably made numerous upgrades to your system already. When it comes to gaming the most critical component in your PC is the graphics card.

A few years ago, graphics cards used to fit into the PCI (peripheral component interconnect) slots on the motherboard. Then AGP (accelerated graphics port) replaced the PCI interface, offering increased bandwidth. This meant the data transfer rate to and from the RAM was much greater.

These days many systems still use the AGP interface, although in the past few months PCI Express technology has emerged. If your system has a PCI Express graphics card you don't need to upgrade right now but as PCI Express will eventually replace the AGP interface, you're well placed to upgrade in the future.

Once again compatibility is the key - always check that your motherboard is going to be able to talk to the graphics card you're buying. ATI and nVidia are the biggest players in the graphics card market. Their struggle for dominance pushes technological developments along quite nicely thank you. We've recommended a couple of cards in our upgrades chart (see page 91), but keep an eye on our dedicated Top 10 chart for further movement in this fast-moving market (see page 232, or check out the July 05 issue for an in-depth roundup). Finally, fitting a new graphics card isn't at all difficult - simply follow the guide on page 90.

### Looking good

Your computer's monitor is another crucial part of the gaming experience - a good graphics card isn't going to be much cop without a decent display.

While a CRT model will have a better response time and richer colours, it will take up more room. And although it will save you desk space, a flat-panel will cost more - especially if you want something with a good response time. For what's hot and what's not at the moment, check out the Top 10 charts on pages 228 and 231.

### TV time

A good graphics card and monitor are essential if you want to use your PC for watching television. And if you want to turn your PC into a fully-fledged PVR (personal video recorder) you'll need a monstrous hard drive. Most importantly, you'll have to get a TV tuner card.

Internal or external models of such cards are readily available, so if you don't feel confident fitting components inside your PC go for the latter version. You'll pay a bit more and have to make room on your desk for a bit more clutter, though, and fitting an internal card isn't hard, as our simple guide on page 93 proves.

Want to make your PC as futureproof as possible? Then look for a tuner card that's compatible with both analogue and digital broadcasts. But be warned - don't for a minute think that this is a clever way of avoiding the licence fee. If you have a TV tuner card in your PC, then you have to pay up. There's no escape...

**Monitors matter: you're going to be staring at your screen a lot, so make sure it's a quality one**



**If you're a gamer, remember that a good graphics card isn't going to be much cop without a decent display**

### Make the cut

Pretty much everything we've said so far is applicable if you want to edit digital video on your PC. To do it properly you'll want a top-spec PC as well as suitable software and a DVD writer to make permanent copies of your work. In terms of applications, Ulead's VideoStudio 9.0 is definitely worth a look - read our full review on page 78.

DVD writers are hitting the market thick and fast as more formats are introduced and burning speeds improve. However, the hottest models at the moment are LightScribe drives, which can burn indelible labels on to the top of the disc, doing away with the need for a messy marker pen or labels. LightScribe burning speeds aren't that quick at the moment, but manufacturers will provide firmware upgrades to improve speeds in the future.

### Photo storage PC

Every keen digital photographer knows that transferring snaps from camera to PC can be a pain. A memory card reader installed in a spare 3.5in drive bay on the front of your PC would certainly help. Don't forget, a large hard drive is essential for storing plenty of images too. ☒





## THREE QUESTIONS YOU SHOULD ASK BEFORE YOU DECIDE WHERE TO BUY RAM...

### **Can you guarantee your RAM will be compatible with my system?**

Use the Crucial® Memory Advisor™ tool, and we guarantee that our memory will be compatible with your system, or your money back.

The Memory Advisor is a one-of-a-kind online tool that contains detailed information about more than 110,000 upgrades for more than 20,000 PCs, including many older systems. Our database is so specific that we know more about the memory in your PC than your computer manufacturer does. The information comes from our close working relationship with computer manufacturers and from the Crucial Compatibility Lab, where seven certified lab technicians perform tests on nearly 3,000 different motherboards.

Even though it contains so much complex information, the Memory Advisor is surprisingly easy to use. Simply tell us the make and model of your system, and in just three clicks you'll know exactly what kind of RAM you need.

### **Do you actually make the memory chips you sell?**

Other memory companies may claim to manufacture memory, but what they actually do is just attach chips to a memory module—someone else makes the chips.

Why does it matter? Quality. Those other guys buy the cheapest chips they can find—often chips that haven't even been individually tested to make sure they'll work in your PC. If you install inferior memory, your computer might not boot. Or it might seem to work fine at first, but later experience mysterious crashes and error messages.

Crucial is the only consumer memory upgrade supplier that's part of a major DRAM manufacturer, Micron. We actually make (and test) our own chips—100 percent of them! In fact, because the world's leading computer manufacturers rely on our high-quality RAM, chances are good that the OEM memory in your system came from Micron. Crucial brings this same high-quality memory directly to you. It just costs less because you don't pay middleman mark-up fees.

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We offer superior customer service right from the start. The Memory Advisor tool is so easy to use that most customers find exactly what they need on their own, but if you ever do have a question, we make it easy to find fast, free answers. You can call us directly, e-mail us, chat with a live Expert Online, or learn on your own with our 3,000 articles and FAQs.

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# 33 HOT PHOTO FIXES



Digital cameras are now so popular that *PC Advisor's* Inbox is stuffed with emails about how to make the most of them and their accompanying editing software. Jason Whittaker answers those burning questions and has tips on improving your photo skills

**S**martphones, PDAs, photo printers, scanners... there are many PC-related gadgets to spend your hard-earned cash on, but none fires the imagination quite as much as the digital camera. Even if you don't own one, chances are there's a lens in your mobile, plus DV camcorders and webcams can take still shots. There's no escaping it.

And as prices fall, quality just rises, making an even stronger argument to put a multi-megapixel snapper in your pocket. It's not surprising many film-based cameras lie unused in dusty attics.

Add the fact that photo printers are now affordable, and have improved beyond recognition in the past year or so, and anyone with a PC now has access to their own digital development lab. Some models don't even need to be hooked up to a computer.

Whether you're an occasional photographer who wants help taking snaps of family and friends, or simply dedicated to getting the most out of your camera, you will find some useful tips in the following pages - we've rated the level of difficulty of each from one flash (a snap) to three (for hot shots only). All the questions we've addressed were taken from the *PC Advisor* online forums and readers' letters and emails.



# YOUR CAMERA



The Canon EOS 350D is one of a new breed of affordable digital SLRs

## MANUAL OVERRIDE

### TIP

While digital cameras have made huge improvements in recent years, they don't necessarily produce better shots on automatic settings. In fact, you often pay more for greater manual control.

As well as allowing you to specify such things as ISO sensitivity and white balance, check whether your camera enables you to override settings for aperture - the diameter of the lens measured as f-stops. You also want customisable shutter speeds because, with aperture, this determines how much light reaches the camera sensor and thus controls depth of field. And look for metering that measures the amount of light in the frame.

### Which camera should I choose?

For entry-level digital cameras, £200 will buy you a decent product with an optical zoom lens and between 3Mp (megapixels) and 4Mp. Raising the price to around £500 doubles the resolution but, more importantly, improves other features, such as lenses and storage capacity.

Digital SLRs (single lens reflex), with the ability to capture up to 16Mp of detail are popular with professionals. But beware - they come with a price tag to match. However, cheaper alternatives such as the Canon EOS 350D (above) come in well under the £1,000 mark. For more detailed advice, check out our digital camera Top 10 charts on page 224.

### I'm looking to preserve my camera's battery life. Any tips?

At certain times, particularly when working outdoors, you may find batteries drain before you get the chance to replace or recharge them. LCD screens use up a lot of power, so use them sparingly to preview snaps. Flash photography can also seriously cut into your battery life, so use it only when necessary.

Disposable AA batteries are easy to source, but can become expensive. On the other hand, rechargeable

batteries require a plug. Instead, get an adapter from Jessops or [InternetCamerasDirect.co.uk](http://InternetCamerasDirect.co.uk) to recharge from a car lighter socket.

### Can you recommend some accessories for my camera?

Well, for a start, you can never have too much memory. Get the highest-capacity flash cards you can in the correct format for your camera and use them as if they were digital film. And get into the habit of backing up your photos to a hard drive or - preferably - removable media such as CDs or DVDs.

Additional lenses for some cameras, particularly digital SLRs, enable you to take wide-angle shots and create special effects. Though others may fit, you must buy a lens designed for your camera. The sensor in a digital camera is smaller than a film camera and most lenses for traditional cameras have a different focal length to those for digicams.

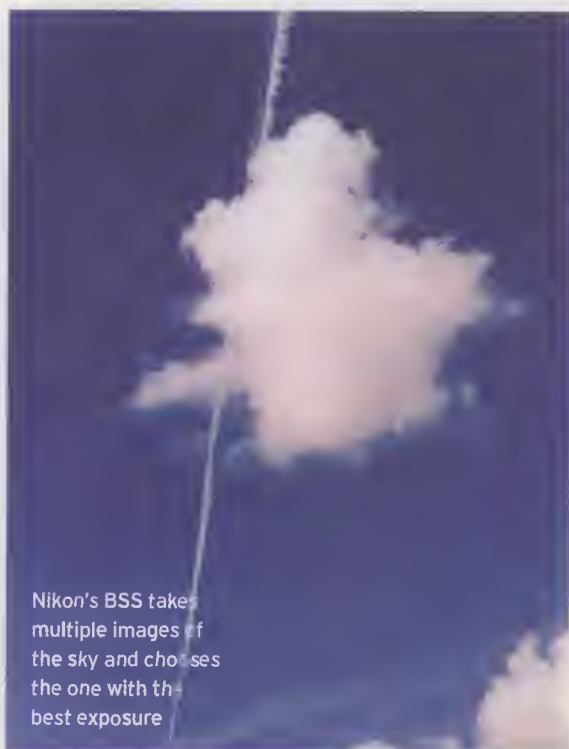
### What other features will help me take better pictures?

Some things can be a real boon for the amateur snapper who wants his or her images to look as professional as possible.

For example, using the BSS (best shot selection) function on some

Nikon models, you need only hold down your finger on the shutter to take a number of pictures. The camera then evaluates the best one to use and saves it to memory.

Likewise, image stabilisers can produce significantly better photos even without a tripod.



Nikon's BSS takes multiple images of the sky and chooses the one with the best exposure

# UNDERSTANDING SETTINGS

**What's the easiest way to transfer pictures to a PC?**

Get yourself a USB card reader - if your PC doesn't have one built in. LaCie sells an 8-in-1 reader for £15 that can read any card format ([www.lacie.com/uk](http://www.lacie.com/uk)). At this sort of price, it makes little sense to save a few pence on a single format.

This should circumvent the annoyingly proactive editing and organising software supplied with many cameras. Otherwise use the USB connector supplied with your camera or docking cradle, if one is available.

**My camera offers a choice of file formats. Which should I use?**

Most cameras support two compression formats for saving your photos, one that is

lossless and another termed lossy - typically Tiff and Jpeg respectively.

Unless space is really at a premium, save images in a lossless format. Jpegs preserve space by discarding data. More advanced cameras offer the option of saving images as RAW files. This is unprocessed data from the RGB pixels on the camera's sensor.

**How do I use ISO and white balance settings? What are they?**

ISO settings control your camera's sensitivity to light. In general, the higher the ISO number (usually 100 to 800), the less light you need for a photo. This will be affected by factors such as cloud cover and whether shots are taken indoors or out.

Simply adjusting ISO to the highest

available setting on your camera can generate problems. On these settings it will pick up more 'noise' - specks that disrupt the image.

More advanced cameras allow you to set the white balance. This is particularly important indoors,

## EXIF DATA AND ITS USES

**TIP**

Many digital cameras save files with Exif (exchangeable image file) data. Exif information embedded in image files stores instructions about how the picture was taken. This can include whether a flash was used, white balance settings and exposure time. Generally, Exif data is used by image editing applications and printers to automatically adjust settings for optimum effect, but it's also possible to check this information using a freeware viewer such as Exifextracter ([www.br-software.com/extractor.html](http://www.br-software.com/extractor.html)) and see which conditions and settings produce your best photographs.

where incandescent lightbulbs tend to emit tones the human eye can't see but the camera can pick up.

Using the white balance, you point your camera at an object that is supposed to be white so the camera can calculate the difference between its actual colour and true white, adjusting your pictures accordingly.

**I want to take fast action shots. Is this possible with a digicam?**

This is an area in which film photography still often has the edge. Digicams can't yet compete in terms of response speed.

The pricier models found in our Top 10 charts (see page 224) and digital SLRs tend to be quicker. Some, such as the Minolta DiMAGE Z5, give you the choice of low and high shutter speeds using a priority exposure control. If you want to take action photos, minimise shutter lag by manually adjusting as many settings as possible - white balance, exposure and so on - beforehand.

**Use unusual perspectives to frame a scene so that it appears very different to the viewer**

**Increasing ISO enables you to catch more detail even when the light is low**



## IMAGE EDITING FOR FREE

**TIP**

Photoshop may be king of digital editing, but it costs a king's ransom. Alternatives such as Elements and PhotoSuite are cheaper, but they can still top the £50 mark. Of free applications, The Gimp ([www.gimp.org/windows](http://www.gimp.org/windows)) is by far the best, but some others to consider include the PD Pro Digital Painter ([www.squirrelldome.com/cyberop.htm](http://www.squirrelldome.com/cyberop.htm)) and Pixia 3.1 (<http://park18.wakwak.com/~pixia>).



## TAKING BETTER PICTURES



### AVOID THE 'ACCIDENTAL POT PLANT' EFFECT

**TIP**

We've all made the classic mistake of setting up a shot only to find the subject mysteriously appears to have a tree growing out of his or her head. This effect, known as mergers, occurs when objects that can be clearly distinguished by the human eye as separate in three dimensions appear joined and flat on the photo. Cluttered backgrounds or foregrounds can add to the effect. Learn to look properly through your camera before clicking the shutter: take a few seconds to survey the scene, looking for objects that might ruin the overall effect.

Using a tripod will allow you to spend more time focusing on the composition of your photographs

a useful menu option under Image, Resize/resample to do this. Don't forget to save as a new name to preserve your high-quality original.

What's the best way to make my photos look more professional?

Fast, edgy shots in the right settings can convey a dynamic feel, but in most cases taking photographs with the shakes is the best way to make them look thoroughly amateurish.

Invest in a tripod, particularly if you intend to take photos using a zoom lens, and you will immediately begin to see an improvement in your pictures.

How can I make pictures smaller so I can email them?

This issue relates to both taking and editing pictures. Saving images in Jpeg format on your camera will immediately compress their file size.

In most cases you can assume an image you email will be viewed on a monitor, so you can reduce its longest edge to about 500 or 600 pixels, which will easily fit the average screen. The freeware program Irfanview ([www.irfanview.com](http://www.irfanview.com)) has

I want to make my pictures more interesting. Any tips?

The obvious tendency for a newcomer to digital photography is to place everything slap bang in the centre of the image.

While useful when you need to concentrate on one object, this can also make a subject look static and boring. Instead, abide by the golden rule when composing your scene: place the object of your image two-thirds to the right or left to create greater interest. Alternatively, use an unusual angle to create a sense of drama. (See *Compose yourself* on page 103 for further tips.)

### ORGANISING YOUR PHOTOS WITH PICASA 2.0

**TIP**

Picasa is a piece of freeware that helps you organise and edit pictures on your PC. Using Google's search tools, it's able to locate photos anywhere on your hard drive. The app works with Windows 98 or later

and, once installed, sets off to search for images. Those it finds are sorted into dated folders within the program - simply rename and keep the folders or use them to sort pictures by dragging and dropping. As well as making photo albums, you can click on the Basic Fixes tab to straighten, crop or auto-correct.



Placing your subject at an angle can immediately add drama to your pictures





# 1024MB, 80GB, Widescreen Thin & Light Notebook

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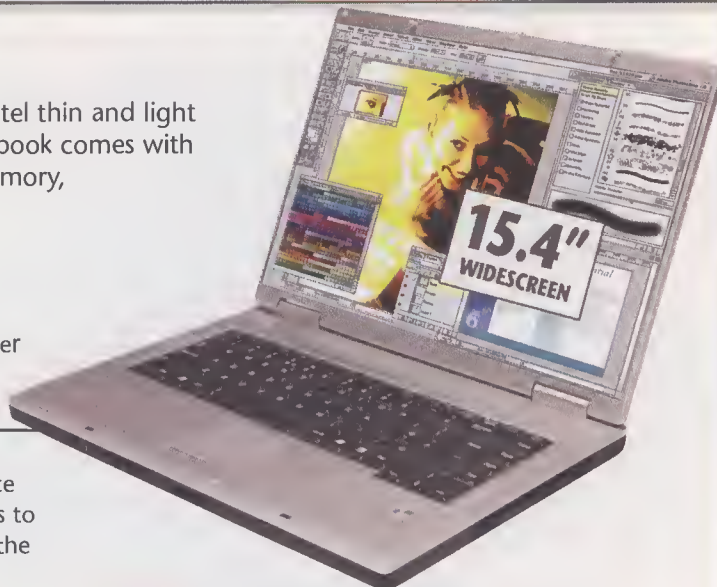
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80 GB  
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Large 80GB hard disk (double that of most notebooks) provides massive capacity for large amounts of photos, music albums, videos and other files.

DVD-Rw  
Multiformat

Multiformat Panasonic DVD burner drive handles all popular formats. Make your own music, photo or movie CDs or DVDs and copy virtually any DVD or CD for backup purposes\*\*. Also acts as a DVD movie player.

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WXGA  
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Ultra high definition 15.4" WXGA TFT screen, superb brightness, high contrast ratio, and dual display facility (1280x800).

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# EDITING & PRINTING

What is the best way to deal with extremes of lighting?

☀☀☀ Sometimes your photos can be badly affected by extremes of light. For example, harsh sunlight streaming through a window can force an entire image to become overexposed.

If possible, avoid taking photos at midday when sunlight is at its brightest. If that isn't an option, you can buy light reflectors that will block the light when placed between your

subject and the sun, or bounce light around the room. Silver foil will have a similar effect. As a stop-gap, using the flash light on your digicam to 'fill' the scene will equalise the light, but this only works close to the camera.

## EDITING

I want to create a simple slideshow of my pictures. Can you help?

☀ Windows XP users can do this easily by customising the folder images are stored in for pictures

(right-click the folder and select Properties, Customize). Now when you open the folder you can view your files as a slideshow from the Task Manager.

If you want to distribute a slideshow, Photodex ([www.photodex.com](http://www.photodex.com)) provides a free trial of its ProShow 2.5 software. Alternatively, you can use Microsoft's Photo Story 3.0 to create an animated presentation ([www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx](http://www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx)).

## COMPOSE YOURSELF

☀☀ Thinking about the composition of your photograph is one of the most important and easiest ways to take better shots. Here are some quick tips for improving the layout of your images.

**1 Use the golden rule** When you look through your viewfinder, imagine that the image is divided into three horizontal and vertical sections, then use the rule of thirds to space your subject to the left or right of the image.

**2 Give more space to dramatic skies**

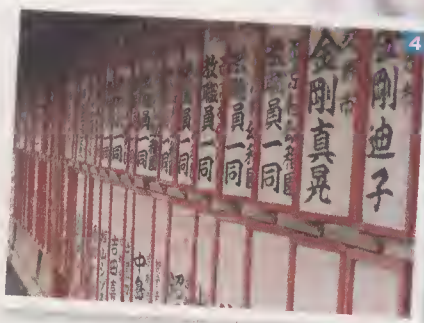
This is a follow-up to the previous tip, in that it generally makes use of the rule of thirds to improve compositions of skylines. Let the horizon fall to the bottom third of the image so that sunsets and dramatic clouds fill the image.

**3 Get close to your subject**

Pictures of individuals or objects that take a snap of the whole person, animal or thing tend to look rather static. Zoom in close to your subject – for instance, cropping into the head and shoulders of a person or using macro mode to photograph small, inanimate objects.

**4 Frames and lines**

One way to add interest can be to use natural frames such as trees or windows to frame a subject. In addition, look for interesting curves, lines or shadows that can be used to create a more attractive composition.



Which tools would you recommend for tracing photos?

☀☀ While the pros may do this in a package such as Illustrator, the rest of us generally lack the talent and the time. There are applications that will speed up the process for you, however.

The heavyweights include CorelTrace (part of CorelDraw) and Adobe Streamline, but there's one freeware program that has this capability: PhotoFiltre (available at [www.photofiltre.com](http://www.photofiltre.com)).

Is there an efficient way to resize groups of images?

☀☀☀ Batch file operations for changing large numbers of images so they are the same size are increasingly being added to photo-editing apps. If yours lacks this you can download the at32 Resizer from [www.at32.com/doc/resizer.htm](http://www.at32.com/doc/resizer.htm). This will resize a folder of Jpeg images to the dimensions you require.

## PRINTING

Which is better value: printing my own pictures or using an online commercial service?

☀ If you regularly print off single images, a decent photo-quality printer is a sound investment. But if you print only the occasional photo it may not be worth using anything other than a budget colour inkjet.

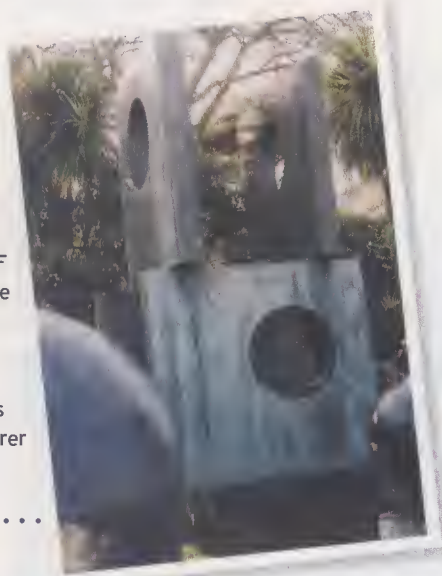
When printing more than about 10 pictures, a service such as PhotoBox ([www.photobox.co.uk](http://www.photobox.co.uk)) or Bonusprint ([www.bonusprint.co.uk](http://www.bonusprint.co.uk)) will always be much cheaper.

## USING DEPTH OF FIELD



DOF (depth of field) refers to how much of an image is in focus. It seems logical that you'd want to have as much sharpness as possible but, in fact, more dramatic effects can be obtained by specifying an area (foreground, middle distance or background) to concentrate on.

Changing DOF to concentrate on objects in the middle ground or distance blurs elements nearer the camera



DOF is controlled by your camera's aperture and focal length settings - how far from an object the camera has to be to remain in focus.

As with cheap film cameras, budget digicams offer very little control over DOF. By setting the focus to infinity, all elements within the picture appear sharp. The greater depth of field available with advanced cameras brings all or most of the image into sharp relief. This is useful for images in the distance.

A common technique for close-ups is to use shallow DOF, making something that is closer to the camera much clearer while leaving the background blurred. This can be achieved with advanced and SLR (single lens reflex) cameras by adjusting f-stop settings - widening the aperture of the camera - and manually adjusting the focal length. But even cheaper cameras have a macro mode that enables the camera to fix on a nearby object.



Low DOF focuses on objects close to the lens

## PICK THE RIGHT PRINTER

### TIP

Inkjet photo printers have boomed in recent years and even budget models can provide entirely satisfactory results for the occasional snapper. If you are interested in producing more professional results, however, try a dedicated photo printer such as the HP Photosmart 8150 or Epson Stylus Photo R300. These use six inks rather than the more usual four to produce a wider range of tones.

Dedicated photo printers such as the Canon Selphy CP500 (below) or Sagem Photo Easy produce rich colours via a process known as thermal dye transfer, rather than ink. In addition, you may wish to buy a printer that can produce prints straight from a memory card, without the need for a PC.

But beware the hidden costs of photo printing. Budget models often have higher running costs, so if you intend to print a lot of photographs it might be worth spending a little more up front.



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However, if you want to manipulate the image or enlarge to more than 7x5in, use your inkjet.

I'm using an inexpensive paper stock. Can I still get good results?

This is a recurring problem. The bad news is that you're unlikely to get the best results from the cheapest paper, but that doesn't





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- Videoshader™ HD seamless integration of pixel shaders



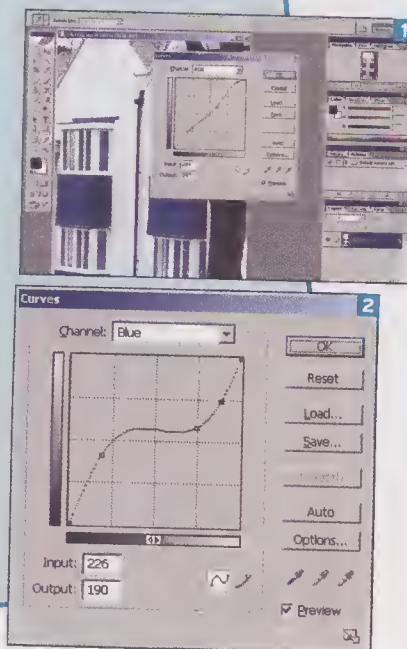
## BETTER QUALITY CONTROL ON CURVES

**TIP**

If you've ended up with a photograph that's too light or too dark, you can alter its brightness and contrast in your image editor. Photoshop users, however, can achieve much greater control over the final image by using the Curves function.

**1** Open the file you wish to edit and go to Image, Adjustments, Curves. This displays a grid representing the different channels (red, green and blue) that provide the colour information for your image. Click and drag the line in the centre of the grid to change colour information for different parts of the image - the lower lefthand section changes darker colours and shadows, while the upper right adjusts areas of lighter colour contrast.

**2** If your image is adversely affected by one particular colour - too much green in light sections, for example - then change to the appropriate channel and experiment with different curves.



mean you are restricted to the manufacturer's expensive premium-quality stock.

Use instant dry paper and, depending on your printer driver, set the image quality to Photo or Transparency rather than Best Photo. The latter uses more ink, which is likely to pool on the paper and smear.

Generally, however, don't expect decent results using paper below 200gsm (grams per square metre).

### How do I improve colour printing when I need to swap cartridges?

This is a common query from readers with printers that have a separate photo cartridge which has to be swapped for the black ink to print photographs.

If the cartridge hasn't been used for some time, you may find skin tones or backgrounds are washed out. This is because ink dries up in the cartridge nozzles. The easiest way to avoid this is to ensure your cartridge is properly inserted and run it through a cleaning cycle.

In some cases, however, if the cartridge hasn't been used for a very long time it may be worth trying to

clear the blockage by placing it in warm water, then standing it on tissue until the ink flows freely again.

### Why don't my prints match the colour on screen?

It's probably down to the fact that colours on screen are additive, created by mixing measures of RGB (red, green and blue), while those on paper are subtractive, using CMYK (cyan, magenta, yellow and black).

There is a smaller range, or 'gamut', of colours onscreen than in real life - and an even smaller gamut of colours on the printed page. If possible, you should use a colour profile provided with your printer on CD or available from the manufacturer's website, although you may have to pay for professional-quality profiles.

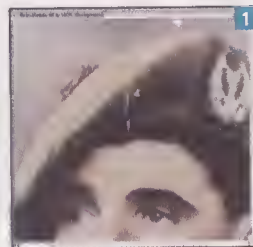
You should calibrate your monitor, matching levels of brightness and colour for optimum results. Software to calibrate your monitor can be expensive, but you can achieve good results by following the instructions at <http://trikuare.cx/art/tut/gamma>.

## RESTORING OLD PHOTOGRAPHS WITH PAINT SHOP PRO

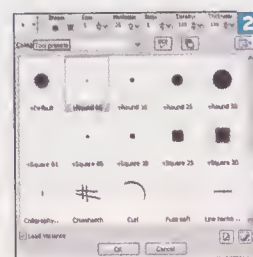
To renovate dog-eared snaps you need a scanner, a printer and an image editor. Here we will use the tools in Jasc Paint Shop Pro 9.0 to repair an old photograph.

### 1 Assess the damage

Our image is a family photo that has been damaged by being folded at some point in the past: there are a number of tears and scratches that scanning at 300dpi does nothing to disguise.



**2 Brush up** Having imported our image into Paint Shop Pro, we will use the clone tools to duplicate nearby areas of the photograph to cover any blemishes. Select the Clone Brush in the Tools toolbar and, after selecting an appropriate brush size (the smaller the better), hold down the Shift key and click on your image to select source pixels.



**3 Heal the blemishes** Zoom into the damaged area, then carefully move the clone tool over the blemishes to heal the image. Paint Shop Pro also provides a Scratch Removal tool, which can be useful for smaller blemishes.





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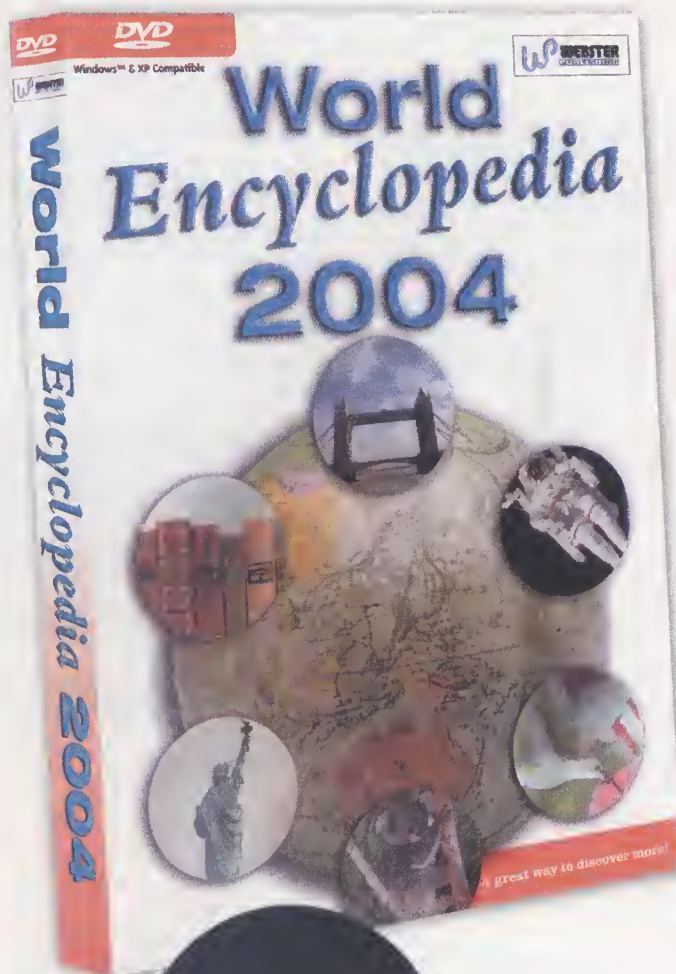
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# Laser*sharp*

Affordable, speedy and capable of producing superb results, colour laser printers are the new black. And white. Robin Morris explains why mono and inkjets are so last year

It's easy to see why so many experts are hailing colour laser printers as the next big thing to hit the IT industry. Mono lasers offer superlative text quality but fall down when it comes to graphics. Colour inkjets, on the other hand, do a great job of delivering prints in full Technicolour - but their imprecise text handling and slow output speed at high resolutions counts against them when it comes to tackling the really important jobs.

So what could be better than taking the best of both worlds and merging them into one stunning colour laser printer? Well, as it happens, not much at all. Read on and we'll explain exactly how and where the new generation of colour lasers stacks up against the alternatives. What are their weaknesses and what do they do well?

We came into this test thinking that we might just be able to find one colour laser at the £300 mark. If we were really lucky, we thought, we might dig up a real bargain for

£280 or £290. So it was much to our surprise that three of the six models featured here arrived with price tags of £280 or less. We even managed to get our hands on one test unit that costs just £239. Now, price isn't the only thing that matters, but it's a pretty important factor. No wonder so many home users are suddenly beginning to consider colour lasers as an affordable prospect.

Over the next few pages, we'll investigate whether these sub-£300 models really can do the job or whether you'd be better off saving up for a more expensive printer. And we'll be featuring some of the big guns in the printer market as well, so stand by to see what the latest colour powerhouses from Dell and Epson are capable of.

One thing we can be certain of is this: the colour laser printer is only going to gain in prominence. So if you want a glimpse of a future that's definitely not black and white, then that future starts here.



## Laser or inkjet?

It's an IT industry rule that more expensive equates to better. Even a cheap colour laser printer will cost you in the region of £300 inc VAT, so such a purchase is guaranteed to produce superior results to a £100 colour inkjet right? Well, erm, not necessarily.

Judged purely in terms of print quality, a high-calibre inkjet such as the HP DeskJet 6540 is equal to any of the printers featured here. In fact, pair it with glossy paper and the output is stunning. The HP's £74 price tag is another compelling factor in its favour.

But quality isn't the only factor. Not all users see speed as critical - if your main need is to run off the odd high-resolution print an inkjet will be fine. If you're a frequent user of colour, however, consider this: regardless of which detail settings and resolutions you specify, the speed of a colour laser will remain pretty steady.

A figure of 4ppm may not sound impressive, but this is what you can expect from a colour laser - even taking into account startup time. By contrast, colour inkjets may boast figures of up to 6ppm, but only at the lowest resolutions. To get a print of significant quality, you can expect speeds to drop to 1.5-2ppm. For truly sizzling results, two minutes a page is common.

If you need to print high-res colour images on a regular basis, a colour laser will get through the workload in a fraction of the time. And laser running costs are usually lower - although the difference isn't as great as you might think. Of the cheaper colour lasers, the Samsung was the least expensive to run, but its 1.8p for a page of colour isn't much cheaper than the Canon Pixma iP3000.

Generally, colour lasers lack the photo-handling features of inkjets - only the Konica had a PictBridge port, for example, allowing direct connection to a compatible digital camera. None had memory card slots, but that's because colour lasers aren't really aimed at the home user. And this is the crux of the matter. If you just want a good printer that gives you sizzling prints of photos - and you don't mind a slight lack of speed - the inkjet is still the best value purchase.

On the other hand, if you need quality prints as quickly as possible and paper handling is important, a colour laser should be your target, particularly if you take into account the real clincher: text output.

No inkjet can reproduce text as well as even a mid-range colour laser. And the speeds afforded by lasers are quite astonishing - even at the highest resolution, most colour lasers can print off text at the rate of at least 20ppm. If text is a priority, but you also want to add a dash of colour, there are now colour lasers available that'll guarantee you full satisfaction.



### **1 NEW** Canon Laser Shot LBP5200

**PCADVISOR BEST BUY** When preparing for this test, we set manufacturers a minimum price tag of £300. But half the models bettered that - in Canon's case, spectacularly so. At £239, the Laser Shot is cheaper than a number of high-selling inkjet models. But is it a good buy?

Laser printers usually have enviable paper feeding options, but the Canon has only a skimpy, hard-to-use fold-out 125-sheet tray. If you want this model, we'd recommend you also quickly snap up the optional 250-page cassette.

The 8MB of onboard RAM is the least of any printer in the chart. However, the Canon compensates by moving more of the workload on to the PC than is generally the case. Because of this it doesn't take long to roar into life, producing 14ppm (pages per minute) in text mode. Even in colour, it comes close to 4ppm.

We're mystified by Canon's claim that the LBP5200 is 'small and unobtrusive'. While not a colossus to the same extent as, for instance, the

Dell, we couldn't describe this printer as petite. And it's definitely not low-key - none of the other laser printers we tested went about their business with such a variety of noises.

So why is this printer our number one? Well, if you're after good-looking prints at a great price, that's exactly what the Canon offers.

It obviously can't match the likes of the Dell and Epson in terms of print quality, but it comes close. The results are pleasing to the eye, with well-matched colours and plenty of attention to detail. Skin tones are accurate, while photo-like finishes are assured. Monochrome prints are light but offer acres of depth; text is precise and clean. Overall, this offers easily the best quality of any sub-£400 laser we've seen.

If your main need is for a good text printer this could be the model for you. Its 14ppm knocks most inkjets into a cocked hat, while output quality is vastly superior. It also produces strong graphics. And if you don't have huge paper-handling requirements or mind a few background noises, the Canon is a great choice.

## 2 NEW Dell Laser Printer 5100cn

**PCADVISOR  
RECOMMENDED**

Pricing and paper handling facilities make a number of these colour lasers perfect for the home. But not the Dell - this model is an office powerhouse.

The 5100cn is a heavyweight in every sense of the word and nowhere is this more evident than in the case of, er, weight itself. You may not have to assign this huge printer its own table - with all the extras bolted on it could double as the desk itself.

In its basic state, the Dell can handle up to 650 sheets of paper - a 500-sheet drawer is joined by a 150-sheet multi-purpose tray. However, attach the optional extras and it's possible to get 2,150 sheets out of this printer - almost double that of the Epson. And it's no less impressive when you look at memory capacity - the already generous 128MB of RAM can be boosted to a massive 640MB.

In terms of speed, the Dell is a mixed bag. It takes a long time to get started on a job, especially if the file is quite large. However, once it's going the 5100cn is blisteringly fast.



In our text tests, where file sizes tend to be quite small, the Dell produced stunning speed. It hit 34ppm - including the startup time. Colour testing produced a more modest 7ppm. This is still the best rate in the chart, though, and once it gets up some momentum the Dell can go considerably faster.

Of all the printers we tested, this offers the best print quality. Pictures are filled with detail and colour, but never too much. Skintones are spot on and the range of depth is a good

answer to those who think colour lasers can't match inkjets. The 5100cn fares pretty well on monochrome printing as well. Text is smooth.

With a price tag of £657, the Dell is aimed at the serious home user and small businesses. Running costs are low - printing a page of mono is a third of the price of the Epson. And if your funds stretch this far you'll

find that the 5100cn's host of extras, strong speed and great output make it the quintessential colour laser.

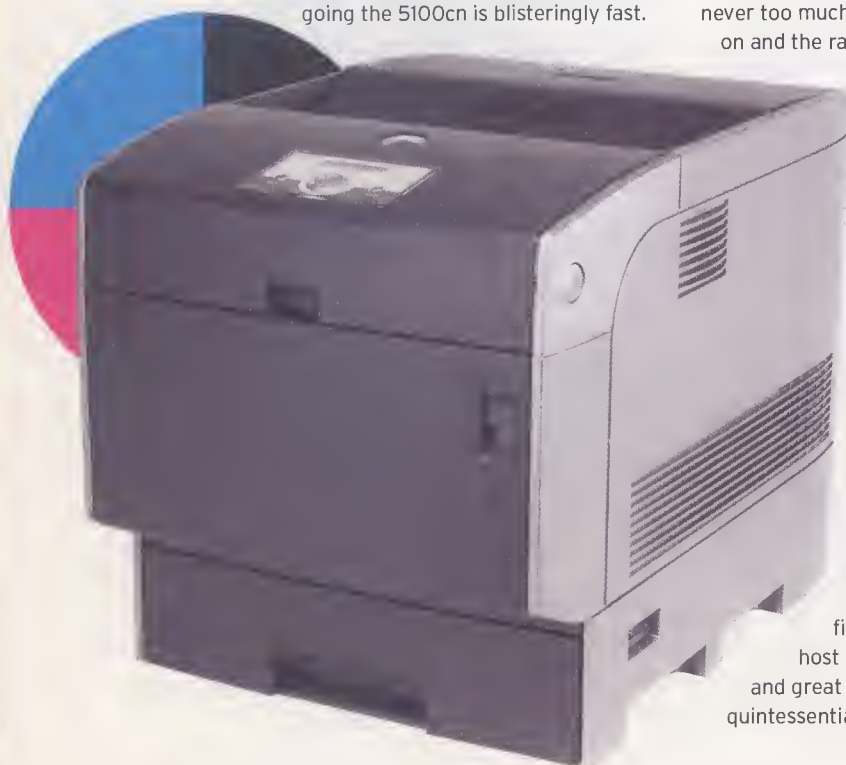
## 3 NEW Samsung CLP-510

Despite costing a similar amount as our Best Buy, the CLP-510 is very different to the Canon. While the latter rules supreme in terms of print quality, the Samsung has a list of specifications that the LBP5200 can only dream of.

Design-wise, however, the Samsung is rather confusing. Panels pop open all over the place, so servicing could prove tricky if it's hemmed in on all sides by a host of other computer peripherals. Otherwise this printer's construction is practical. And where it matters the most, the CLP-510 has the clout to cope with sizeable print jobs.

Paper handling is surprisingly good for a low-cost model. There's a 250-sheet cassette and 100-sheet multi-purpose tray so you can load 350 sheets at a time. If that's not enough you can buy and bolt on an optional 500-sheet tray. That should see to all your office needs.

The memory configuration is no less stunning. Not only does the 64MB of onboard RAM match the memory allocation of some high-end printers, but it can also be upgraded to a healthy 192MB. Lack of network support as standard is one of the few signs that this is a budget printer, although the duplex facility allows you to print to both sides of the paper - one feature we didn't expect to see.





## Colour vs mono

Comparing inkjet printers with lasers is a far from straightforward exercise. Judging colour lasers against their mono equivalents is much easier, however. So let's take our number-one colour model, the £239 Canon Laser Shot LBP5200, and test it against the £193 mono Kyocera FS-920.

While the Canon costs £46 more, when you consider that you're getting colour printing as well it is decent value. In terms of print speed there's very little difference - the Kyocera racks up 17 text pages per minute, while the Canon manages a slightly more leisurely 14ppm.

The quality of the text the Kyocera produces is marginally superior to the Canon's - partly because the former has better resolution support. But both offer a massive improvement over inkjet printer output.

The Kyocera has 32MB of memory, as opposed to the Canon's 8MB, although this fact is unlikely to affect text-based work. Should you have graphics to print, it's worth bearing in mind that the Canon can't be upgraded. The Kyocera, meanwhile, can pack in up to 288MB of RAM.

Again, the Kyocera wins on paper handling. While the Canon has a 125-sheet paper tray, the Kyocera can handle double this amount. The Canon can be bolstered to accommodate 375 sheets, but it's still not a patch on the Kyocera's 500.

The FS-920 definitely succeeds on running costs, too, needing only 0.9p to produce a page of text, rather than the 1.4p demanded by the Canon.

Inevitably, if you're after colour laser printing for the same money as mono, you won't get quite as much in the way of resolution and memory. Mono lasers will be a little faster and have improved text quality. But there's not a lot in it.

So if you need a good text printer but want the ability to produce graphics, a colour laser is your best bet.



Speed is good - only the Dell and Epson were faster - and the Samsung isn't expensive to run. The Epson will cost you slightly less per page, but there's not much in it.

So why isn't this our number one? Well, it doesn't have the most faithful colour reproduction: images were frequently quite exciting, but the purist in you will hanker after more realism. Monochrome prints, meanwhile, were too dark and lacked a little detail.

However, some users will probably prefer the brooding look of the prints knocked out by the Samsung. And with careful tweaking of the drivers it ought to be possible to get a colour palette you like.

But that still leaves the problem of text, which lacked enough clarity for our liking. And, even with its hugely powerful specifications, this just prevents the CLP-510 from being the Best Buy it almost deserves to be.

### 4 NEW Epson AcuLaser C2600N

One of the criticisms often levelled at colour lasers is that their technology isn't as good as that of equivalent mono printers. But Epson smashes that argument with this model.

The C2600N is a mono laser that's been turned into a colour printer by adding toner and altering the drivers. That means, if you choose not to use

colour toner - or run out of it - the unit can return to its black-only origins. As the procedure for doing this is almost as straightforward as replacing the toner on a standard laser printer, you could buy the mono version and then make the leap to colour. But since its black-and-white sibling, the 2600N, costs only about £85 less, you might as well go straight for the C2600N.

And it is actually rather a good colour laser. The C2600N's 650-sheet input trays are impressive. And for a little extra they can be boosted to a healthy 1,150 sheets.

Memory is a little meagre, but you can upgrade to 512MB. You probably should add some memory, because the standard 64MB isn't really adequate for large print jobs. Network connectivity and duplex features are givens, while the clear LCD display and well-designed menu make the C2600N a cinch to use.

This printer generally fares extremely well on print quality. Graphics are pleasingly colourful with plenty of detail and text comes out clean and crisp. Monochrome printing doesn't offer the same subtlety.

The C2600N is also very fast - even if it can't quite keep up with the Dell. And we're expecting some aggressive price cutting from Epson during the coming months, so this model could yet become the best deal for the serious laser user.



#### 5 NEW Konica Minolta Magicolor 2430 DL

As much as we love 'em, we have to admit that one major drawback with colour lasers is their bulk. Home PC users may be able to replace their oversized CRT monitors with chic slimline flat-panels, but the IT industry now expects them to cut loose their petite inkjets and replace them with whopping great lasers. Now nobody could say the 2430 DL

is exactly small, but it was one of the few printers we reviewed that could be carried from one room to another with ease. It also takes up relatively little desk space and has a convenient design. Put simply, it's an easy printer to accommodate.

The specifications are okay, but not as impressive as you'd expect for £406. In its basic form the 2430DL takes only 200 sheets, while 32MB memory is provided. However,

these features can be expanded to 700 sheets and 544MB. Duplexing facilities lend a touch of convenience.

The 2430DL may lack the consistency of its rivals, but colours are reasonably attractive, if a touch on the dark side. The Minolta does fall down slightly in terms of colour depth - the more detailed the subject, the less satisfactory the results.

The same could be said of mono prints, where detail is not always clear. Text is adequate, but speeds are a little disappointing - the much cheaper Samsung, for instance, is comfortably faster.

There's not a lot wrong with this printer - it's just not in the same class as the Dell and Epson models. Neither is it fast or powerful enough to make it worth the outlay when compared with the sub-£300 models.

#### 6 NEW HP Color LaserJet 2600n

More closely resembling an air-raid shelter than a colour laser printer, the 2600n is a formidable partner to be

PCADVISOR  
RECOMMENDED  
BEST BUY

Top 10 Colour laser printers			Hardware resolution Software resolution	Installed RAM Max RAM	Processor speed Max noise (decibels)	Quoted print speed Actual print speed	
1	<b>Canon Laser Shot LBP5200</b> 0870 514 3723 www.canon.co.uk New	• £239 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 9,600x600dpi	8MB 8MB	n/a 54dB	B=19ppm C=4ppm B=14ppm C=3.9ppm	
2	<b>Dell Laser Printer 5100cn</b> 0870 907 3333 www.dell.com/uk New	• £657 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 2,400x1,200dpi	128MB 640MB	400MHz 69.5dB	B=35ppm C=25ppm B=34ppm C=7.1ppm	
3	<b>Samsung CLP-510</b> Buy from Dabs.com www.samsungelectronics.co.uk New	• £250 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 1,200x1,200dpi	64MB 192MB	266MHz 49.8dB	B=24ppm C=6ppm B=18ppm C=4.6ppm	
4	<b>Epson AcuLaser C2600N</b> 0800 220 546 www.epson.co.uk New	• £706 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 600x600dpi	64MB 512MB	350MHz 56dB	B=30ppm C=7.5ppm B=24ppm C=6.5ppm	
5	<b>Konica Magicolor 2430 DL</b> 01784 442 255 www.konicaminolta.co.uk New	• £406 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 2,400x600dpi	32MB 544MB	130MHz 53dB	B=20ppm C=5ppm B=16ppm C=4.4ppm	
6	<b>HP Color LaserJet 2600n</b> 0845 270 4222 www.hp.com/uk New	• £279 inc VAT • 1-year warranty • First review Aug 05	600x600dpi 600x600dpi	16MB 16MB	264MHz 47dB	B=8ppm C=8ppm B=7.5ppm C=3.3ppm	



planted on your desktop. Sadly, such outer signs of strength aren't echoed by this competitively priced printer's internal specifications.

The only really surprising feature of the 2600n is a network connection - it's the only sub-£300 colour laser to boast such functionality. But don't be fooled. Apart from this the 2600n lacks the wherewithal to blend into an office environment.

As with the Best Buy Canon, it's obvious which features have been downgraded to hit the ultra-low price tag. Memory isn't at a premium in the HP - although its 16MB configuration is twice that of the Canon. Likewise, you can't bolt on extra RAM to improve the printing.

Paper support is adequate. Using the standard setup you can load 250 sheets and an extra 250-sheet feeder can be added. The cheaper Samsung can accept up to 850 sheets.

Unlike the Best Buy Canon, the HP doesn't compensate for its failings with great print quality. Colours are frequently wide of the mark, while

skintones are far from realistic. Monochrome prints fail to match their source material. Text output is good, if a little light. But the final straw comes with the HP's lack of speed - it's the slowest in the chart.

Inexpensive this printer may be, but the HP proves that Canon's model is the exception to the golden rule: you (usually) get what you pay for. ☒



## Caveat consumer

It's easy to look at laser printers and marvel at their low running costs, but if it were that simple there wouldn't be a market for other types of printer. Factor in certain hidden costs and it can make lasers a more expensive proposition than you reckoned on.

First and foremost, consider the cost of the imaging drum. Laser printers will always need one of these - it's the component that applies the toner to the page. While it doesn't need to be replaced as often as toner, you'll still need to buy a new one every so often.

For instance, in the case of the Dell 5100cn, a replacement drum costs £105 and lasts for about 30,000 pages. In effect you'll be paying an extra £35 for every 10,000 pages of black toner.

On the Epson C2600N, the drum is cheaper. It comes in the form of a photoconductor unit, costs an extra £63 and lasts for 40,000 pages. However, you will also have to replace the fuser unit every 80,000 pages, and this'll set you back an extra £150. Again, you'll be paying around an extra £35 for every 10,000 pages of black toner.

Admittedly, these extra costs are hardly going to break the bank. But it's always worth knowing how much you're going to have to pay. And bear in mind that, while you'll be buying consumables far less often than you would for an inkjet, when it comes time to replace them, the costs will be much higher - and will hurt that bit more. Plan ahead and the pain should be somewhat more bearable.

Max paper size Standard paper output	Standard paper input Max paper input	Supported interface types Network connectivity	Dimensions (wxdxh) weight	Cost of toner Print life (pages)	Cost per page
A4 125 sheets	125 sheets 375 sheets	USB 2.0 available as option	396x353x249mm 10kg	B=£70 C=£85 x 3 B=5,000 C=4,000 x 3	B=1.4p C=2.1p
A4 300 sheets	650 sheets 2,150 sheets	USB 2.0, parallel yes	427x582x462mm 35kg	B=£27 C=£117 x 3 B=9,000 C=8,000 x 3	B=0.3p C=1.5p
A4 250 sheets	350 sheets 850 sheets	USB 2.0 available as option	510x470x405mm 36.3kg	B=£80 C=£90 x 3 B=7,000 C=5,000 x 3	B=1.1p C=1.8p
A4 250 sheets	650 sheets 1,150 sheets	USB 2.0, parallel yes	431x518x425mm 37kg	B=£43 C=£99 x 3 B=5,000 C=5,000 x 3	B=0.9p C=2.0p
A4 200 sheets	200 sheets 700 sheets	USB 2.0 yes	430x395x341mm 20kg	B=£54 C=£95 x 3 B=4,500 C=4,500 x 3	B=1.2p C=2.1p
A4 125 sheets	250 sheets 500 sheets	USB 2.0 yes	407x453x371mm 18.4kg	B=£75 C=£90 x 3 B=2,500 C=2,000 x 3	B=3.0p C=4.5p

Colour laser printer not right for you? Turn to page 230 for our Top 10 mono lasers and colour inkjets...

...or find out how to boost your PC with some cost-effective upgrades. See page 88

# The race for bargain broadband

After years of costly 512Kbps connections, all of a sudden a tenner a month will get you 2Mbps - and there are plenty of other tempting deals out there vying for pole position with the British surfer, as Simon Easternman and Rosemary Haworth discover

An internet access price war has broken out, with Tiscali and UK Online leading the assault. If the cost of switching from dialup to broadband has previously put you off, now is the time to investigate some of the current competitive offerings.

BT has been upping the speeds that ADSL-enabled exchanges can handle, so fatter pipes and faster downloads may well be within your reach. In a few months' time there's every chance that

those with the most robust ADSL (asymmetric digital subscriber line) connections - yes, the usual handful of lucky urbanites - will be able to enjoy download speeds of up to 8Mbps (megabits per second) and, on cable, even more. But the rest of us are about to get far faster connections too.

With all this in mind, now is a good time to take stock. Are you paying too much for your current broadband account? Should you finally make the switch from dialup to ADSL? And are any previously unavailable services now within your price bracket? Over the next few pages, *PC Advisor* will help you to decide.

Though BT has been rolling out faster ADSL services to existing customers for many months, it was only in April this year that the availability of faster broadband was sufficiently widespread for the telco to actively promote it. BT aims to complete this process by July, so that those of us sufficiently close to our ADSL-enabled telephone exchange will be able to upgrade from what now seems a relatively slow 512Kbps (kilobits per second) to as much as 2Mbps.

As ever, geographical location, distance from a high-speed exchange and the quality of the copper cabling that carries the ADSL signal remain critical. BT couldn't provide us with figures for just how many of us will actually be able to take advantage of 2Mbps or faster broadband, but broadband director Emma Sanderson claims the aim is to offer speeds of at least 1Mbps to almost everyone currently surfing on 512Kbps.





## Don't stop moving

Once you're sold on the advantages of broadband internet access, you might be pleased to hear that you needn't leave it at home. If you have a Wi-Fi-enabled notebook, you can log on to the web through any Wi-Fi access point - also known as a hotspot - and surf, as it were, on the go.

These hotspots are everywhere: cafés, coffee shops and a number of pubs. Wi-Fi is pretty much standard in the larger hotel chains and conference centres, while the country's biggest hotspot is in the British Library. BT has even started putting hotspots in some of its phone boxes.

So are hotspots worth it? Well, it depends on your needs. While popping

down to the pub to surf a few sites might seem like overkill, for anyone who regularly works out of the office they are a godsend. The British Library is a case in point: 10 minutes' walk from three of London's mainline stations, it provides the perfect peaceful haven for the harassed businessman up in the city for the day, with two hours until his train goes and a stack of emails to answer.

However, using a laptop in public is always risky - make sure you keep a weather eye on those around you. Second, not all Wi-Fi connections are secure, and there have been reports from the US of hotspot-using laptops being hacked. Our advice is save your online banking and shopping to do at home.

Hotspots are typically provided by ISPs, so to use one you'll either need a contract with one of the relevant service providers or you can pay as you go. Prices vary, starting at around 10p a minute. Check out the websites of BT Openzone, T-Mobile, The Cloud, ReadyToSurf, Broadscope or Surf and Sip for prices.

Once you're at your hotspot, go to Start, Connect to, Wireless Network and select the one you want. Then enter your username and password (supplied by the ISP) and you're in - simple. Usually download speed is on a par with any other service, so you can do anything you might on your connection at home, and drink hot, frothy cappuccino at the same time. Just don't spill it on your keyboard...

BT isn't the be-all and end-all, though. What the ongoing process of local loop unbundling means is that third-party ISPs are able to install their own equipment in BT exchanges and optimise connections in such a way that, even if BT doesn't offer an upgrade, other ISPs might.

The process of upgrading BT exchanges for broadband is also advancing nicely. It's estimated 99.6 percent of UK citizens are likely to be able to grab themselves a piece of the broadband action, one way or another, by the end of next year.

If you were out of reach of broadband 12 months ago, it's unlikely you'll be able to jump straight to 1Mbps-plus, but you may be pleasantly surprised to find your previously dialup-only exchange is now up and running for high-speed access.

### Your starter for 10

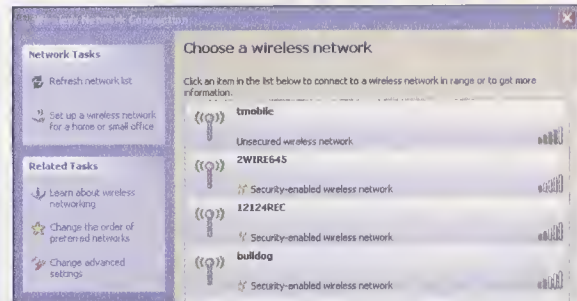
Unsurprisingly, UK Online's general manager Chris Stening says the company has had "a very good response" to its tenner-a-month broadband service

it began offering at the end of March. While many of us have already made the move to broadband, the low-cost 512K service undercuts the cost of many all-you-can-eat narrowband subscriptions, putting it within reach for many people who were previously unable - or unwilling - to stump up £20 or £30 a month.

The reason UK Online ([www.ukonline.net](http://www.ukonline.net)) is able to offer the lowest price for basic broadband, Stening says, is that it has installed its own technology in BT exchanges.

While you won't be surprised to learn that only a fairly select few can currently take advantage of the fastest 8Mbps service, UK Online is quite transparent in supplying a list of current and 'coming soon' exchanges that will be able to hop aboard the super-speedy highway (see [www.ukonline.net/broadband/?doc=exchangelist](http://www.ukonline.net/broadband/?doc=exchangelist)).

As we were compiling this feature, IC24 announced a similar deal to UK Online's price-busting £10-a-month, promising 2Mbps broadband for the same price as UK Online's 512K service. This is an introductory offer for the first three months only - still, it costs a very reasonable £17 a month thereafter. Pretty good, but be warned: downloads are capped at a paltry 2GB per month, and once you sign up you're committed to IC24 for at least two years unless you're prepared to stump up an £80 cancellation fee.



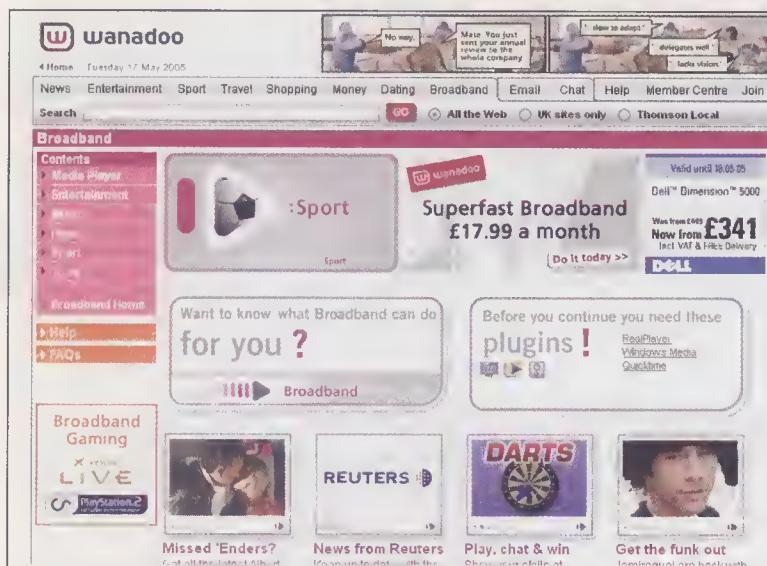
As with ADSL and local loop unbundling, the provision of a fatter pipe is down to the quality of the copper lines the signal travels across, your distance from the exchange, and there must also be sufficient people in your area pushing for better broadband. So if you were one of those agitating for change three or four years ago when the rollout of broadband of any kind seemed achingly slow, now is the time to revisit [Broadband4Britain.com](http://Broadband4Britain.com) or any log on your chosen ISP's website for registering interest.

### Outer limits

Needless to say, it's not all good news. Yes, you can get tenner-a-month broadband, but with many of us making more extensive use of the web, particularly for downloading larger files and viewing video online, limits are being placed on monthly usage by some service providers.

There's no need to accept this: plenty of ISPs have got unlimited

With Wi-Fi  
you can enjoy  
high-speed  
surfing on  
the road



Wanadoo's broadband services range from £12 to £35 per month

Those who routinely hog bandwidth and download massive files will have their connection speed cut right back once they hit their monthly limit

download services to offer. Usually, though, you pay a slightly higher monthly tariff. If you're likely to be a borderline case you should look into whether it might not be best to go for a cheaper subscription and put up with the

spectre of being charged or otherwise penalised for going over your limit. Check with your ISP whether the data it counts includes sending and receiving emails.

BT's Emma Sanderson says those who routinely hog bandwidth and download massive files will have their connection speed cut right back once they hit their monthly limit. Those who still don't curtail their habits could, in theory, be bumped to a pricier package with a higher download cap. We've not heard of any instances of this happening yet.

Limits tend to be quite generous, but look beyond the low prices and check what you get for your money. Are there any restrictions on usage,

for instance, and how long are you committed once you sign up?

Most ISPs have followed cable provider NTL's lead in introducing a variety of packages and pricing structures to reflect customers' varying requirements. So it shouldn't be a problem to find one that suits, whether you simply want to send and receive emails with photos attached, shop online, grab software apps and updates or download or stream lots of music, films and sports clips.

For example, PlusNet ([www.plus.net](http://www.plus.net)) recently announced all of its broadband services will be 2Mbps but will be differentiated by the number of people with whom you have to compete for server bandwidth - also known as the contention ratio. Most ADSL and broadband customers have had to contend with as few as 20 other subscribers until now, but as you'll see from the table on page 120, a figure of 50:1 is more common with these value-laden broadband deals.

Alternatively, you can get some very good deals with HomeChoice, which offers combinations of broadband access, digital TV, movie rental and cut-cost phone rates. Prices start from £29 a month (with an introductory offer of £20 a month for the first quarter) for the 1Mbps

*continued on page 122...*

## Quick, quick, slow, slow

**F**lexible bandwidth is an idea that BT came up with roughly 12 months ago. The idea is that you may only need a fairly low-grade broadband connection most of the time, but at other times you'll want to hog more bandwidth so you can download large files such as hefty email attachments or music tracks, or watch streamed content online. So pricing adapt to reflect usage over time - a bit like combining a pay-as-you-go service with a fixed-fee one.

Last time we quizzed BT on this topic, director of broadband Emma Sanderson hinted June would see the introduction of a flexible scheme. That hasn't happened, but the concept hasn't entirely fizzled out. Eclipse ([www.eclipse.net.uk](http://www.eclipse.net.uk)) may be the sole ISP to offer flexible broadband, but it is so behind the idea that it no longer offers standard subscriptions.

Spokesman Howard Ribbner tells us more than half of Eclipse's 40,000 broadband subscribers already use its Flex scheme. The company has its own development team that came up with a way of monitoring customers' usage. "It's a matter of tracking the amount of data over a given time," says Ribbner.

Pricing for a temporary speed boost depends on your broadband package, but if you're on Eclipse's Home 500 half-meg tariff and want to quadruple it to 2Mbps while you stream the latest music videos, you'll be able to do so for just eight pence an hour. That's pretty reasonable. As with the other ISPs' offerings we've outlined in this feature, however, flexing or no flexing, upload speeds are fixed at 256Kbps.

Only cable company NTL acknowledged there's likely to be a consumer push for faster upload speeds. NTL internet director Bill Goodland claims it is the largest single British ISP and is in the process of merging with rival Telewest, consolidating its position as the country's main cable broadband provider.

Like Eclipse, NTL sees the potential of flexible bandwidth, citing the ability to speedily update apps remotely and get temporary access to higher bandwidth to make it more efficient to upload or download large files. Although NTL "has nothing to announce at this time", the company was pleased with the results of the flexible bandwidth trial it undertook in the Guildford area last year. All we can say is watch this space...



## So near, and yet so far

As with the National Health Service, the standard and speed of service available to you varies depending on where you live. I don't just mean whether you're a townie or country dweller, either: the rollout of increased-speed ADSL is also determined alphabetically by the name of your exchange. For example, one end of my road is served by an exchange with a name starting with the letter W; the other is closest to a BT exchange whose name begins with an A. Guess which one provides my ADSL.

While I'm waiting for BT to get to W, though, I console myself that I'm lucky enough to get broadband in the first place. And it turns out that UK Online, which recently announced ADSL speeds of up to 8Mbps, is able to bump me up to 2Mbps via the technology it paid BT to install in some of its exchanges.

Otherwise, I may have been tempted by Onspeed - not a broadband service in itself but a clever form of speed boosting in the form of multiple compression codecs. (See page 122 for tips to boost your connection.)

For many people, the issue is not whether the fastest speeds can be wrung from their exchanges, but rather whether broadband access is available at all and, if so, that it's affordable. Wales, for example, has one of the highest rates of broadband usage, with 40 percent of Cardiff residents signed up. Much of the rest of the country is either beyond the reach of ADSL or only able to surf via satellite broadband, which costs far more than the competitive subscription fees being dangled in front of everyone else's noses.

However, in mid-April the Welsh Assembly announced that, after a lengthy period of testing broadband interest levels, it has found that demand is extremely high and it is now looking at the logistics of providing a solid high-speed infrastructure across the country. Andrew Davies, minister for economic development and Wales' e-minister, says the aim is to "improve the competitiveness of Wales by increasing the availability of affordable broadband across the country". The structure for the Broadband Wales programme should be in place by March 07.

Scotland, meanwhile, will be fully ADSL-enabled by the end of this year, as the Scottish Executive has earmarked funds from the EU for this purpose. The rest of the UK that is still without broadband of some sort - granted, only a very small percentage of the population - is at the mercy of market forces. You can register your desire for faster net access all you like, but unless it looks like your local exchange will profit by becoming broadband-capable, it may be a lost cause.

However, BT's Emma Sanderson says the telco is conducting trials into radio and other forms of broadband provision, so things could be looking up - even if ADSL is never an option. *Rosemary Haworth*



ADSL:  
Grey = enabled now  
Green = enabled in 2006



Cable:  
Light green = enabled now  
Dark green = enabled in 2006

turn over for our  
indispensible guide  
to broadband services...

## Feature: best-value internet connections

Broadband provider	Connection type	Setup charge	Monthly cost	Monthly cost	Monthly cost	Upload speed
		Minimum contract	Download cap (512K+)	Download cap (1Mbps+)	Download cap (2Mbps+)	
Adsl4Less www.adsl4less.com	ADSL	£59 12 months	£12/£15 2GB/unlimited	£12/£25 2GB/unlimited	£12/£35 2GB/unlimited	256Kbps
AOL Broadband www.aol.co.uk	ADSL	free 12 months	£18 unlimited	£25 unlimited	£30 unlimited	256Kbps
BT www.bt.com/broadband	ADSL	free (if you order online) 12 months	N/A	£1B (£16 for 3 months) 1GB	£25 (£23 for 3 months) 15GB	256Kbps
BT Yahoo! www.bt.com/broadband	ADSL	free (if you order online) 12 months	N/A	N/A	£25/£28 15GB max/30GB max	256Kbps
Demon www.demon.net	ADSL	free 12 months	£20 unlimited	£30 unlimited	N/A	250Kbps
E7 www.e7even.com	ADSL	free/£50 24/6 months	£10 unlimited	£1B-£24 unlimited	£22-£28 unlimited	256Kbps
Eclipse www.eclipse.net.uk	ADSL	£59 (Flex BB Unlimited) 30 days	N/A	N/A	£15/£20 1GB/5GB	256Kbps
Euro1Net www.euro1net.com	ADSL	free/£59 12/6 months	£10	£16/£1B/£22 5GB/10GB/unlimited	N/A	256Kbps
Freedom2surf www.freedom2surf.net	ADSL	£50 30 days	N/A	N/A	£20/£25/£30 2MB/10MB/50MB	250Kbps
Homechoice www.homechoice.co.uk	ADSL	£1 (see notes) 12 months	£17.50/£27.50 (see notes)	£17.50/£27.50 (see notes)	from £17.50 (see notes)	256Kbps
IC24 www.ic24.com	ADSL	free 24 months	£17 (£10 per month first three months) 2GB	£17 (£10 per month first three months) 2GB	£17 (£10 per month first three months) 2GB	256Kbps
Karoo www.karoo.co.uk	ADSL	£40 12 months	£28 (750K) unlimited	£35 (1.5Mbps)	£40 3Mbps	256/3B4Kbps on 750Kbps & 1.5Mbps/3Mbps services
Lobsterpot www.lobsterpot.net.uk	ADSL	£29 12 months	£12 min 500MB	£14 min 500MB	£15 500MB	256Kbps
NamesCo www.names.co.uk	ADSL	£30 30 days	£20 unlimited	£27 unlimited	£35 unlimited	256Kbps
Nildram www.nildram.net	ADSL	£59 30 days	£23 50GB	N/A	£26 50GB	256Kbps
NTL www.ntl.com	cable	free 12 months	£18	£1B (£10 for 1st year) 3GB	£25 (1 month free) 1GB per day	same as download speed
OneTel www.onetel.co.uk	ADSL	free 12 months	£24/£25 unlimited/2GB	£24/£25 unlimited/2GB	£24/£25 unlimited/2GB	256Kbps
Pipex www.pipex.net	ADSL	free 30 days	£20/£24/£28 2GB/5GB/15GB	£23 unlimited	£34 unlimited	256Kbps
PlusNet www.plus.net	ADSL	free 12 months	£15 unlimited	£15 unlimited	£15 unlimited	256Kbps
Prodigy www.prodigynet.co.uk	ADSL	£50 30 days	£15/£19 2GB/unlimited	£15/£28 2GB/unlimited	£15/£38 2GB/unlimited	256Kbps
Supanet www.supanet.com	ADSL	free 12 months	£18/£25/£45 3GB/10GB/unlimited	£18/£25/£45 3GB/10GB/unlimited	£1B/£25/£45 3GB/10GB/unlimited	256Kbps
TalkTalk www.talktalk.co.uk	ADSL	free 12 months	£22 unlimited	£25 unlimited	N/A	400/800Kbps
Telewest www.telewest.co.uk	cable	free 12 months	£15 unlimited	£20 if ordered online unlimited	£35 unlimited	128K on 512K and 1Mbps service/256K
Tiscali www.tiscali.co.uk	ADSL	free 12 months	£16 30GB	£16/2GB	£20 15GB	256/512/800Kbps
UKOnline www.ukonline.net	ADSL	free 12 months	£10 unlimited	£20 unlimited	£20 unlimited	256Kbps
V21Home www.v21.co.uk/	ADSL	£30 12 months	£13 60hrs/unlimited	£20 unlimited	£40 unlimited	256Kbps
Virgin.net www.virgin.net	ADSL	free 30 days	£16/£1B/£25 1GB/6GB/20GB	£25 20GB	N/A	256Kbps
Wanadoo www.wanadoo.co.uk	ADSL	free 12 months	£18/£23/£28 2GB/6GB/30GB	£18/£23/£28 2GB/6GB/30GB	N/A	256Kbps
Zen www.zenadsl.com	ADSL	£50	£25 unlimited	£30 unlimited	£35 unlimited	256Kbps
ZetNet www.zetnet.com	ADSL	£59 3 months	£23 unlimited	£30 unlimited	£35 unlimited	256Kbps

All details correct at time of press 10.06.05. Most services come with antivirus/antispam security features - check with ISP for details

Where we've stated prices are identical for all connection speeds, the ISP will provide the fastest possible ADSL connection available on your phone line (usually as far as 2Mbps)



## Feature: best-value internet connections

	Contention ratio	Cost of support calls (pence per minute)	Online freebies	Email addresses	Parental controls	Notes
	50:1	10p	none	unlimited	£3 per month	extra bandwidth £1.75 per GB on capped services; migration from another ISP, £15
	50:1	free	unlimited picture storage	7	yes	
	50:1	50p (1Mbps), free (2Mbps)	none	3	no	subscription £2 cheaper for first three months
	50:1	local rate	15GB web space, unlimited picture storage	11	yes	save £25 ordering online
	50:1	10p	20MB (only with 1Mbps service)	unlimited	no	
	50:1	£1	50MB web space	unlimited	no	hardware extra, SMS email notification, game servers. Lower monthly fee on 12-month contract
		national rate	20MB web space	10	no	
	50:1	national rate	50MB web space	10/30/unlimited	no	free off-peak call options
	50:1	national rate	50MB web space, 5MB database space	2	no	free bandwidth use 1am-6am. £1 discount per month on 12-month contract
	50:1	local rate	100MB web space	12	optional, £26 per year	digital TV, phone & movie combos from £27.50 (£20 first 3 months), £49 setup for 1Mbps broadband only service
	50:1	national rate	50MB web space	unlimited	no	£80 cancellation fee within first 24 months; additional downloads £2 per GB
	20:1	local rate	20MB web space	5	no	service only in Kingston Communications areas (ie, non-BT)
	50:1	national rate	none	none	no	hardware not included. Extra GB are £1.75 each
	50:1	national rate	100MB web space	5	no	£50 termination fee within first 12 months
	50:1	national rate	100MB non-commercial web space	1 (5 with 2MB service)	yes	unlimited bandwidth off-peak. Free setup if migrating from another ISP
	n/a	local rate	55MB web space	15	no	Broadband Plus video and TV content for £4
	50:1	national rate	10MB web space	1	no	hardware not included; £25 capped service includes free local rate phone calls
	50:1	local rate	50MB web space with 1Mb and 2Mb services	3 (12 with 1MB and 2MB services)	no	£5B termination fee within first 12 months
	50:1/30:1 on Premiere	local rate	100MB web space	unlimited	no	All connections cost the same - PlusNet supplies fastest connection possible on your ADSL line
	50:1	non-premium rate	100MB web space	1	no	free setup if migrating from other ISPs; hardware not included
	50:1	free	20MB web space	5	in security package	
	50:1	free	15MB web space	5	no	non-TalkTalk phone customers pay extra £2 a month for broadband; hardware not included
	N/A	local rate	30MB web space		CyberPatrol trial included	save £30 by ordering online. Non-Telewest phone customers pay extra £3 a month for broadband
	50:1	national rate	100MB web space	6	yes	extra GBs £1.50 each
	50:1	25p	100MB web space	10	yes	
	50:1	national rate	extra	5	family browser	
	50:1	50p	10MB web space	5	no	
	20:1	national rate	150MB web space	unlimited	yes	
	50:1	local rate	1GB web space (5MB file size limit)	5	no	
	50:1	national rate	50MB web space	10	optional filtered server	hardware not included, migration fee £18

service, and HomeChoice's accounts currently top-out at 4Mbps, which will set you back £35 a month.

A further alternative is to use a pay-as-you-go broadband service – a concept that's been offered for a while via Wi-Fi hotspots. All you need is an access card and a wireless-enabled laptop, and companies such as Bulldog (owned by Cable & Wireless) and PlusNet let you pay for only the time you are online, in much the same way as the old metered dialup internet system used to work. And for mobile users or those who simply need ad hoc web access when travelling, the cost of Wi-Fi access has become more competitive (see *Don't stop moving* on page 117).

Clearly, there's not room enough here to provide a complete rundown of the broadband ISP services available and to point you in the direction of the ones that you can choose between where you live. However, a number of sites are able to do precisely this: head to [www.broadbandchecker.co.uk](http://www.broadbandchecker.co.uk) or [www.broadband4britain.co.uk](http://www.broadband4britain.co.uk)

Similarly, [www.uswitch.com](http://www.uswitch.com) gives a rundown of services, not just for broadband but also for a number

of commercial services such as gas and electricity supplies, telephone provision and so on. You can get an idea of the options available where you live via its built-in service search which is able to determine your best choice of ISP based on your current connection and future needs.

That said, when we performed such a search, it was unable to ascertain the existence of any services in our area, despite telling the selector that we were already enjoying half-meg broadband.

Migrating from one service to another ISP should now be fairly easy. ADSL service providers that have signed up with Ofcom's code of practice are committed to making the process fast – you should simply need to obtain the MAC (migration authorisation code) from your current ISP and give it to your new broadband provider along with your phone number and postcode. The changeover should then be a matter of a few days' wait, assuming you don't have to sit tight while you complete your contractual obligations to your existing service provider.

Check if your ISP subscribes to Ofcom's code of practice at [www.ofcom.org.uk](http://www.ofcom.org.uk) (note cable providers are not part of this agreement). In most cases, ISPs will offer assistance and favourable terms if you want to become one of their customers. ☒

## 5 ways to surf faster

Stuck with a dialup connection for now? Here are some useful ways to boost your browsing.

**1** Use compression software such as Onspeed to make web pages load faster and to make it faster to view and send emails (visit [www.onspeed.com](http://www.onspeed.com)).

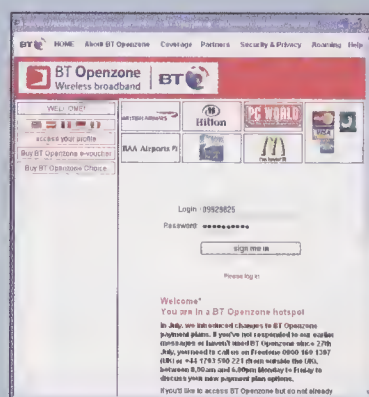
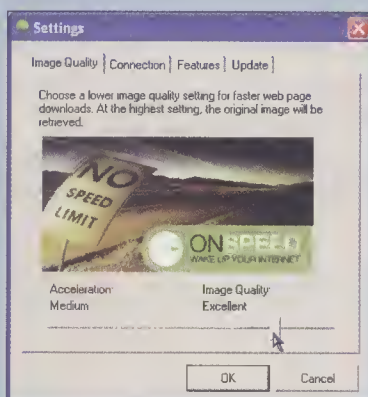
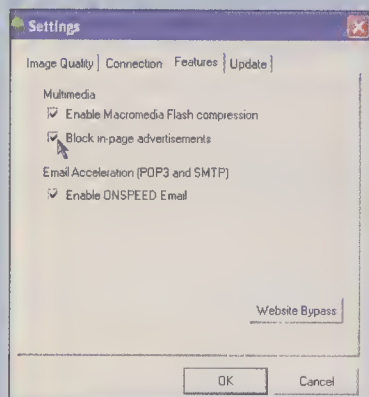
**2** Install a pop-up blocker. Pop-ups are among the chief culprits at slowing down the rate at which web pages load, so try a tool such as Pop-Up Stopper (free from [www.panicware.com](http://www.panicware.com)) or Webwasher ([www.webwasher.com](http://www.webwasher.com)), or install Windows XP Service Pack 2, which has a pop-up blocker built in and will also improve the security of your web connection.

**3** If you're not fussed about the prettiness of the sites you surf, turn off the graphics via the Tools, Advanced option in your web browser, and you won't have to wait so long for pages to load.

**4** Add more RAM to your PC – check your manual to see how much more you can squeeze in. A simple, cheap upgrade can boost your entire system.

**5** Stop your web connection timing-out part way through a hefty download using Download Accelerator Plus ([www.speedbit.com](http://www.speedbit.com)) or Internet Download Manager ([www.internetdownloadmanager.com](http://www.internetdownloadmanager.com)).

## Onspeed for dialup



Onspeed works via a number of compression algorithms that operate on specific web page elements. The company claims that it boosts a dialup web connection by as much as five times and, unlike some of the other web accelerators we've tried in the past, it's highly effective.

The software compresses each element of the pages you browse. Graphics, in particular, are the heaviest part

of most sites, so these get really squashed. You can also choose to turn off on-page advertisements, which should cut down on thumb-twiddling while you wait for the next page to load. MP3s, movies and Flash-based sites will also soon have dedicated algorithms.

Although it's not as effective for broadband use, if you're awaiting an upgrade from a 512Kbps connection, it's worth using Onspeed to hurry things up a bit.



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# High-tech holiday

Clothes, money, passport... laptop? Technology can help you prepare for your trip, enjoy yourself while you're out there and share the memories afterwards. This summer, don't step on that plane without Ursula Seymour's guide

**S**ummer's here and you may be planning to jet off to exotic climes for a well-earned break. For some, it's the perfect excuse to leave technology behind in the office. But as electronic entertainment devices grow in popularity, many of us will be packing an extra case to hold all those can't-live-without gadgets.

For technophiles a holiday is inextricably linked to, well, technology. We PC-savvy travellers research and book our trips online, making the most of the wealth of inside information and web-only bargains the internet can offer.

We've got tips on how to get the best from booking online, we'll point you in the direction of top travel sites and show you invaluable advice resources. Want to know where to

check on the weather, get the best exchange rates and find out what your hotel is really like? Read on.

We'll also look at how you can share the highlights of your holiday before you even board the plane back, explaining how to upload photos and send emails home while you are away.

## Check mate

Before you pack your case, don't miss our guide to the best travel gadgets that will save on your baggage allowance and keep your kit safe and sound. We also provide a checklist of the essentials you'd be lost without, plus give advice on how to keep all your gizmos charged and ready to go, wherever you are.

But before you start worrying about packing, the first step is to put your PC to work planning your trip.

Most holiday companies provide online search and booking facilities. Many offer internet-only discounts. We saved £50 per person by booking our Virgin Holidays trip to Florida online, while Eurostar waives the £5 booking fee if you order on the web.

It's worth seeing what sort of discount you can get this way, and you can still book your holiday with a travel agent if you'd prefer. But the web becomes indispensable when you're looking for the inside track on what a destination is really like. Tripadvisor ([www.tripadvisor.com](http://www.tripadvisor.com)) is a great site to visit if you want to get a feel for a hotel. Users post opinions and give a rating based on their stay. These scores then create an overall rating for each property.

While this site can be bewildering, as reviewers often give conflicting





opinions, at least it gives you an honest insight. And you can usually work out for yourself whether the complaints are genuine or relevant. Some couples may moan about all the children in a resort, for example, but holidaymakers booking a family trip might take that as a recommendation.

Another useful site of this type is Reviewcentre ([www.reviewcentre.com/consumer\\_reviews12.html](http://www.reviewcentre.com/consumer_reviews12.html)). It doesn't have as much information as Tripadvisor, but is more UK-centric - you won't find North American travellers complaining about small portions, as they do on Tripadvisor.

### Safety warning

Once you've established the resort isn't rife with rude staff and inedible food, you probably want to find out more about your chosen country.

For far-flung locations it's a good idea to check out the Foreign Office's advice at [www.fco.gov.uk/travel](http://www.fco.gov.uk/travel). This offers plenty of general information on safety while travelling and can update you on terrorist threats and the probability of natural disasters.

The Foreign Office site links to the Department of Health's travel health website ([www.dh.gov.uk/policyandguidance/healthadvicefortravellers/fs/en](http://www.dh.gov.uk/policyandguidance/healthadvicefortravellers/fs/en)), which is worth a look.

### The essentials

What do you need for a holiday? Well, plenty of money and nice weather help. The internet may not be able to make the sun shine, but a visit to [www.xe.com](http://www.xe.com) will reveal what your pounds are worth. This site also provides commission-free money exchange, but only for electronic transfers.

## PUT YOUR PC TO WORK PLANNING YOUR TRIP. MOST HOLIDAY COMPANIES PROVIDE ONLINE SEARCH AND BOOKING FACILITIES. MANY OFFER INTERNET-ONLY DISCOUNTS

As for the weather, there are hundreds of sites with forecasts for any location around the globe. Our favourite is Weather Underground ([www.weatherunderground.com](http://www.weatherunderground.com)). It goes far beyond the basics: you can view a weather map for any location and display information on a range of features, from wind chill to visibility.

Now you've used your PC to choose and book your break, the next step is to decide which electronic goodies to pack alongside the sunscreen and

## CHECKLIST

Before you leave, refer to our at-a-glance checklist to make sure you haven't forgotten anything vital.

### Travelling companions

10 things technophiles can't live without:

- Digital camera/camcorder
- Camera connection cable and card reader
- Storage media
- Spare batteries
- MP3 player
- Travel speakers
- Power adapters
- Waterproof pouches
- PDA/smartphone
- Notebook

### Final checks

Make sure you:

- Insure all your gadgetry for your trip
- Set up a webman account
- Prepare your mobile or PDA for use with Netaway
- Download e-books/audio books
- Set up a photo storage account with Photobox or a similar service
- Download AIM for instant messaging on your PDA



swimming trunks. Top of the list will probably be a digital camera and/or camcorder. You may also want a digital media player to keep you amused on the flight and the beach.

### Book some space

As well as music and video clips, PDAs often support e-books or PDFs, so you can even save space on dog-eared paperbacks.

But here's the down side: tot up how much all this kit is worth and you might get a fright. Check you have adequate travel insurance as there could be a limit to how much you can claim for a single item. If your camcorder is worth £800 you may have to insure it separately, unless your home contents cover extends to loss or damage abroad.

But prevention is better than cure, so plan ahead to keep your valuables safe. Taking a notebook PC away with you? Buy a lock so you can secure it. The Kensington Slim MicroSaver (about £32 from [www.dabs.com](http://www.dabs.com)) fits 95 percent of notebooks.

Waterproof pouches are another good investment. Aquapac ([www.aquapac.co.uk](http://www.aquapac.co.uk)) makes robust covers for a range of electronic equipment including cameras, camcorders and PDAs. These protect against water and sand damage. Some even float, which could be very useful.

### Compact and bijoux

Size, or rather weight, matters when it comes to packing. You don't want to find that your luggage is off the scales when you get to the check-in

For reviews from real travellers visit TripAdvisor. It has honest opinions and user ratings

desk. Fortunately, there are some simple ways to keep the weight of all that 'essential' gear to a minimum.

For example, if you have a powerful PDA or even a smartphone, it should be able to take the place of your notebook for a couple of weeks. Many allow you to write and receive emails, take and view digital photographs and even send instant messages or play games. If you use AOL Instant Messenger, you can download a version for your PDA at [www.aol.co.uk/aim](http://www.aol.co.uk/aim).

If you don't mind reading a book on a tiny screen, some PDAs also include e-book reader software from Adobe or Microsoft, so you can download titles from sites such as [www.ebooks.com](http://www.ebooks.com).

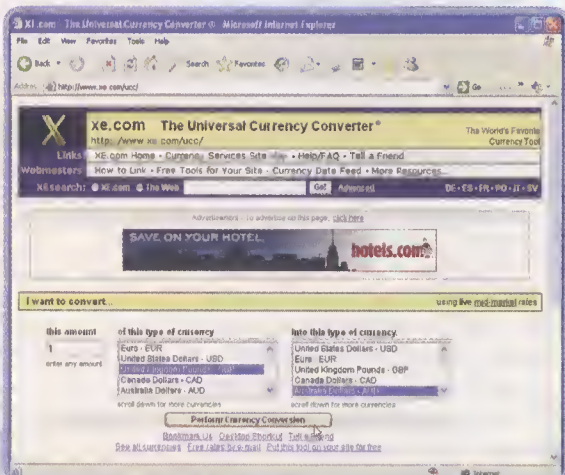
### Music on the move

A digital audio player cuts down on excess baggage by letting you leave your CDs at home. Among the tiniest are Apple's £69 iPod Shuffle, BenQ's £90 Joybee i02R and iRiver's £150 N10. These hold about 240 songs.

If this is too small, you can opt for a higher-capacity 4GB or 6GB iPod Mini, or go all out with an iPod Photo, which weighs 181g and can display your snaps as well as storing 15,000 songs - enough for a round-the-world trip. Of course, portable audio doesn't begin and end with Apple's range. For advice on the best choice of digital music players, take a look at the round-up in June's *PC Advisor*.

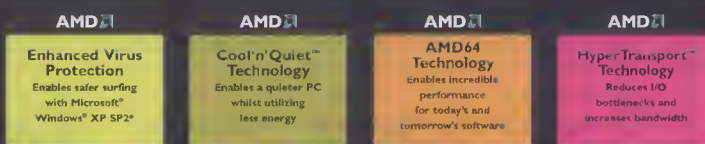
If you're planning to take your iPod around the world, there are a couple of accessories you might want to invest in. The PodGear FirePower World Tour Charger (£20 inc VAT from [www.ipodworld.co.uk](http://www.ipodworld.co.uk)) includes adapters for the UK, Europe, the US, Japan and Australia. You'll be able to keep your iPod charged all over the globe. At the same site you'll find the 38g PodGear PocketParty Micro Speaker System, allowing you to share tunes with your fellow travellers for just £24 inc VAT.

See what your pounds are worth using [www.xe.com](http://www.xe.com)'s currency converter





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For those with time to kill, for example, a full-length recording of *War and Peace* will set you back a cool £33 inc VAT on cassette, but only £22 as a download. Alternatively, [www.audible.com](http://www.audible.com) has a good selection of books, as well as selected articles from magazines and newspapers.

### Power politics

Adapters aren't only important for digital music players. If you're travelling anywhere that uses a different type of electrical system from the UK's you'll need to ensure you're appropriately equipped to hook up anything that requires power or recharging.

The Targus Power Adaptor Kit Worldwide (£25 inc VAT from [www.dabs.com](http://www.dabs.com)) has adapters for more than 100 countries around the globe, so wherever you are travelling you should be able to stay charged up.

If you're going somewhere so remote that you won't be able to plug in your camera or camcorder for a while, it's a good idea to buy a spare battery - or a long-life one, if the manufacturer offers such a thing. Extra batteries can set you back quite a bit, so charging your hardware while you're away is the cheapest option.

### Memory matters

It's not just power that can run out when you're on the move. If you're busy snapping or recording all the scenery and local attractions you'll soon exhaust your memory card or video tape. Stock up on plenty of high-capacity cards before you go away, unless you're going to be able to upload images to a PC. If this is your plan, remember to pack a connection cable or a card reader.

**IF YOU'RE BUSY SNAPPING OR RECORDING ALL THE SCENERY AND LOCAL ATTRACTIONS YOU'LL SOON EXHAUST YOUR MEMORY CARD OR VIDEO TAPE**

## SETTING UP A PHOTOBBOX ACCOUNT

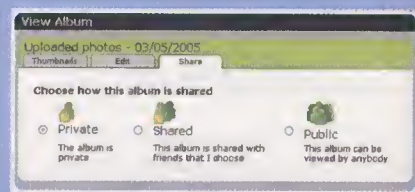
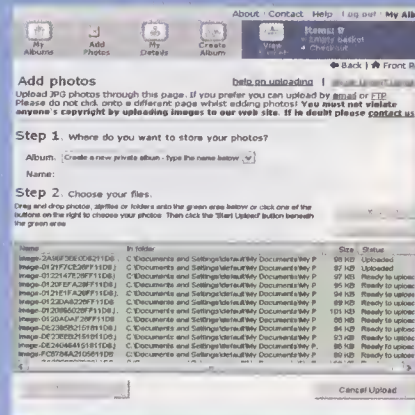
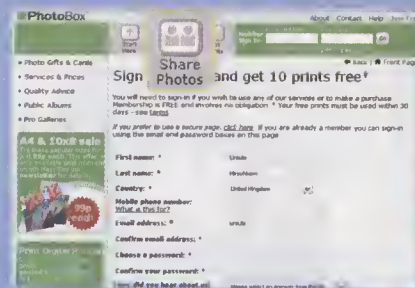
If you are determined to post photos while you're away - and you'll have private access to a PC - a good, free way to share your photos is to set up an account with a service such as Photobox ([www.photobox.co.uk](http://www.photobox.co.uk)). Follow these simple steps and you'll soon have 200MB of web space to play with, while relatives and friends can order their own prints from the website if they wish.

**1** Click on the 'Share my photos' button on the home page. From here you'll be prompted to become a member to get your 200MB of free space (50MB is added to this every time you make an order). Membership is free

**2** Once you're signed up with the site, the next step is to click on the 'Add Photos' option. This allows you to create a public album to display your images. To do this you can either choose a temporary print album or a private folder. With the latter option you can opt to post images which only selected people can view.

The website asks you to install an ActiveX tool to allow you to upload images, after which a green box appears. You can drag and drop images or zip files on to this box to automatically upload them to the site. Alternatively, you can use the standard browser upload which doesn't require you to install any additional tools - which is useful if you are on the move and not always using the same PC

**3** Once you've uploaded your images, share them with friends by entering their email addresses in the box at the bottom of the page. Another option is to view your album page, click on the Share tab and choose whether to keep your images private, share them with selected friends or create a public album that anyone can view



Another option is the Slimline PhotoStore (£150 inc VAT from [www.storagedepot.co.uk](http://www.storagedepot.co.uk)). You simply insert a memory card into this clever piece of kit and it burns the contents to a CD. This way you can beef up your storage capacity while you're away, without having to shell out for lots of expensive memory cards.

If you're planning a long trip - or you simply can't bear to be out of

contact with the rest of the world - avoid the expense of long-distance calls by using email to stay in touch. But to do this you'll need to organise yourself before you go.

Accessing your POP3 (Post Office protocol version 3.0) based email isn't always simple when you are abroad - more of which later. So if you want to be able to send and receive email via the internet it makes sense to set up



## ONE THING YOU SHOULD BE DILIGENT ABOUT WITH ANY WEB-BASED EMAIL ACCOUNT IS LOGGING OFF WHEN YOU HAVE FINISHED CHECKING YOUR MESSAGES

a web-based account using a service such as Gmail. Head to [www.isnoop.net/gmail](http://www.isnoop.net/gmail) to bag yourself an invitation to join this free service, which provides more than 2GB of storage and the option to upload photos.

Of course, if you've got an existing webmail account from a company such as Yahoo, Hotmail or Wanadoo, you can access that online too. Then, if your provider supports it, set your existing email address to forward mail to your new one.

If you don't already have a webmail account, set one up before you leave. You don't want to get involved in such a time-consuming process while paying extortionate amounts for web access, or dealing with a painfully slow dialup connection.

### AOL okay

If you use AOL, you can access your usual email account while abroad, as it provides dialup numbers for countries all over the world. The ISP also offers a web-based email service. But all this doesn't come for free: AOL costs from £16 per month just for dialup.

One thing you should be diligent

about with any web-based email account is logging off when you have finished checking your messages.

If you are accessing your email at a public terminal and forget to do this, anyone who uses the computer after you can read your emails and send anything they like via your account - which could be embarrassing.

### Email on the go

If you'd rather not rely on web-based email and want to access your POP3 account while abroad, there are two ways to do this. Which you choose depends on whether or not you're taking your notebook with you.

If you are, Netaway's pay-as-you-go global internet service ([www.netaway.co.uk](http://www.netaway.co.uk)) can help. This works by connecting you up to a local ISP and allowing you to access the internet and email in the same way as you would at home. The service costs 8p per minute. However, you can opt for one of its various packages that offer blocks of worldwide internet access for a lower cost per minute.

Alternatively, you can use Netaway's service on a mobile phone

Mail2web allows you to read and send POP3 email from around the globe



or PDA, but you'll need to jump through a few hoops to set things up before you go. Learn about these in advance on the company's website.

If you're travelling technology-free or don't fancy accessing the web via a phone or PDA, you can still get at your POP3 mail from an internet terminal. To do this you can use the free Mail2web service ([www.mail2web.com](http://www.mail2web.com)). You don't have to do any pre-planning to use this service - you can register instantly. Be careful to log off once you've read your email and never select any 'Remember my password' boxes on a public PC.

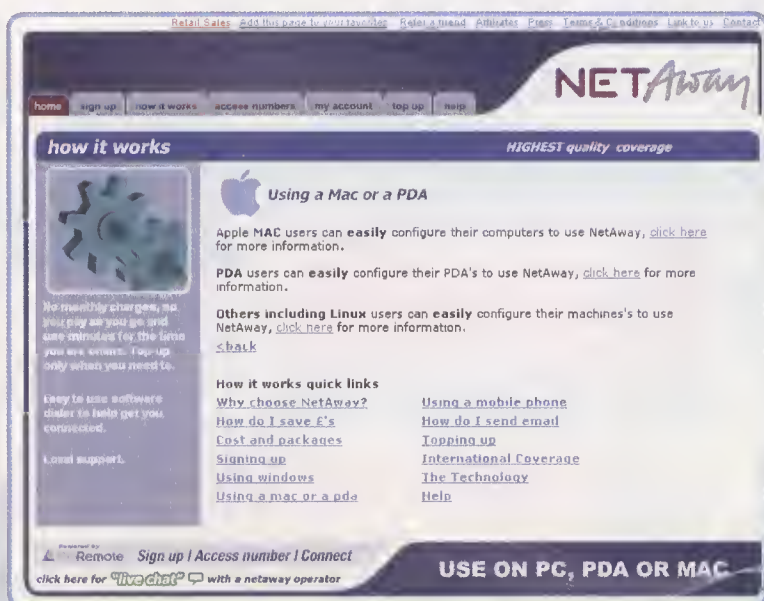
### Get the picture

Boring your friends with holiday snaps is an ideal way to prolong the pleasure of a trip away. But if you just can't wait until you get back to share memories, make sure you've got your notebook with you - you probably won't be able to connect a camera to a public internet terminal.

Once you've downloaded photos to your computer, you'll need to get online. You can do this in much the same way as accessing email using Netaway or AOL (if you are a member). Or if you have a wireless-enabled notebook, you might be able to use a Wi-Fi hotspot, depending on where you are.

Once you're online, you can use a web-based storage service such as Photobox ([www.photobox.co.uk](http://www.photobox.co.uk)) to upload and display images (see *Setting up a Photobox account*, opposite).

But this is a time-consuming business, particularly if you are stuck with dialup. It could also be quite costly if you are paying for web access. On balance it's probably best to delay the pleasure of sharing your photos until you get home. ☒



Make yourself feel right at home with Netaway's pay-as-you-go internet service



# Ultimate Centrino Notebook with 512MB, 80GB and 15.4" Screen



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# Here's how

The Here's how section combines workshops, Helpline and The Advisors. We'll take you step-by-step through specific projects as well as troubleshooting readers' problems, while our independent experts report on what's new in their particular fields of computing knowledge

## The Advisors

**132** Google's quest for world domination could be accomplished via a merger with Amazon (fiction) or a set of eerily useful map services (fact), according to our Internet Advisor. Meanwhile Susan, our Windows Advisor, notes that Microsoft's tablet PC could finally be ready for the big time. Our Office guru demonstrates renewed faith in the value of metadata, Multimedia Advisor Tom prepares to bid farewell to FreeHand - Macromedia and Illustrator have learned vector tracing, so that could be that - and Video Advisor James considers the options for disc-burners. Finally, our Web Development Advisor checks out alternative browsers and, if remote PC access is your thing, you shouldn't miss this month's Network Advisor column.



## Workshops



**164** What can't Windows XP do? Quite a lot, actually. Preserve your sanity and teach your OS some new tricks with these 10 clever (and free) tools.

**172** Podcasting: it's the latest thing, don't you know. Well, if you didn't, learn how to broadcast your words on the net with our step-by-step guide.



## Helpline

**178** Our Helpline guru just loves to solve computing crises. If you have a PC-related query, write to [pcadvisor\\_letters@idg.com](mailto:pcadvisor_letters@idg.com). Remember to mark your email 'Helpline' in the subject header.



# Putting Google on the map

The search-engine giant's latest developments will make your life easier - and may assist the company's quest for world domination. Truth is stranger than fiction

Google is poised to rule the world, if you believe an eight-minute Flash movie released on the web at the end of 2004. In Epic 2014, Google merges with Amazon, forming 'Googlezon' in a bid to fight off Microsoft, which buys Friendster, mixing it with its Newsbot service to create Newsbotster.

After launching the Google Grid, a platform that allows the storage and sharing of unlimited data, Googlezon refines its news aggregation service to trim sentences and facts from reports, personalising things for each reader. In 2011 *The New York Times* sues Googlezon for copyright infringement over its news rewrite service, loses, and goes offline in protest. In 2014, Googlezon unveils Epic, the evolving personalized information construct.

## Epicture this...

Epic filters the world's information for each individual. Everyone can contribute and receive a cut of Googlezon's ad revenue, based on the popularity of their contributions. The film concludes:

"At its best, Epic is a summary of the world - deeper, broader and more nuanced than anything before. At its worst, and for too many, Epic is merely a collection of trivia. Much of it untrue, all of it narrow, shallow and sensational.

"But Epic is what we wanted. It is what we chose. And its commercial success pre-empted any discussions of media and democracy, or journalistic ethics."

You can view the video at [www.robinsloan.com/epic](http://www.robinsloan.com/epic).

Back in the real world, Google has been busy expanding its services. Probably the biggest release of note is the UK edition of Google Maps (<http://maps.google.co.uk>). It's been available across the Atlantic for some time. Now we can play, too.

## Map magic

While mapping on the internet is nothing new, Google has added its usual dose of spit and polish. Unlike other sites, where you have to wait while a new page loads if you want to zoom in or move around, Google Maps lets you simply drag the map, downloading images on the fly.

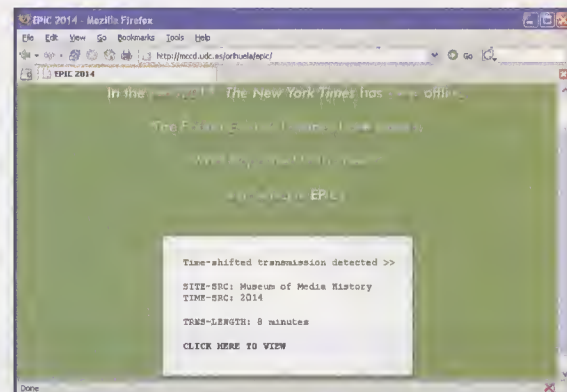
Business information from Yell.com is included. So if you enter an address and type 'newsagent', you'll be presented with place markers showing the nearest locations. Want more information? Just click the place marker and Google will tell you about that specific shop.

Google Local (<http://local.google.co.uk>), also just released for the UK, allows you to search for businesses in a certain area too - but returns results in a more traditional Google list style - although it links in to Google Maps. There's even a cut-down version for compatible mobiles: <http://mobile.google.co.uk/local>.

Given the speed of Google developments, the question should perhaps not be when it will take over the media publishing space, but whether it needs to team up with Amazon to do so. ☒

## WILL HEAD

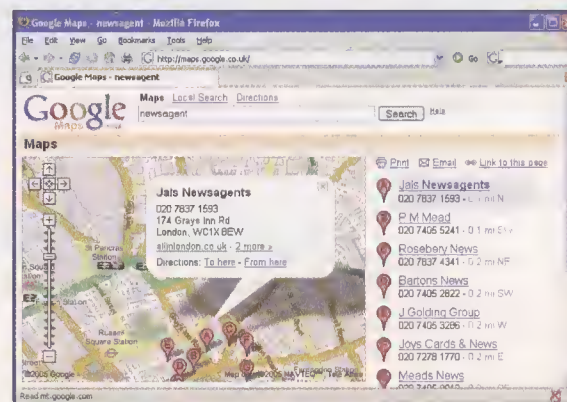
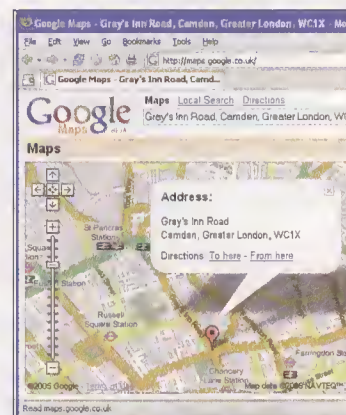
After persuading his mum to buy a modem in 1993, Will has rarely spent more than 48 hours away from the internet ever since. He spends far too much time surfing the web during office hours, but now has the perfect excuse... Email [s.com](mailto:s.com) with your comments, suggestions and tips.



Above: beware the Googlezon - not even Microsoft can compete with its awesome power

Right: no waiting for pages to load while you browse around

Below: Google knows about places too, so finding things is easy





## Previously, on the internet

The great debate about how content on the internet should be funded took a new turn recently, with the trial introduction of Google adverts into selected RSS (really simple syndication) feeds.

RSS is the latest method of keeping informed. Combine it with a feed reader application and you can quickly keep track of when your favourite sites are updated. But all feeds aren't equal – and herein lies the problem.

Some sites opt for the summary feed: just a headline and a precis. If the reader wants the full story then they must follow a link. Some users find this a pain in the click, and favour feeds containing the complete item, where no additional is surfing required to get the big picture.

If a user clicks through from a summary feed to read the story on the web then the site earns its advertising dollars as normal. Bung all that info into a full-story feed, however, and there's no reason for them to visit the site, which means no valuable ad-eyeballs.

The solution? Pepper your full-feed RSS with adverts and you're quids in again. Except some users aren't pleased. RSS, they say, should be advert-free – but then, that's what they said about the internet.

Dave Winer feels particularly slighted by ads in RSS, since he was responsible for developing part of the RSS standard.

"Advertising in RSS is just starting now, for all practical purposes. If we, as an industry, wanted to reject the idea, we could – by asking the people who create the software to add a feature that strips out all of the adverts," Dave whined on his blog at [www.reallysimplesyndication.com](http://www.reallysimplesyndication.com).

Jason Calacanis, co-founder of WeblogsInc, which groups blogs to sell adverts together and is involved in the Google RSS ads trial, struck back: "If you're not willing to have ads in your RSS feed, are you willing to pay for the content you get? If not, how will the writers get paid?"

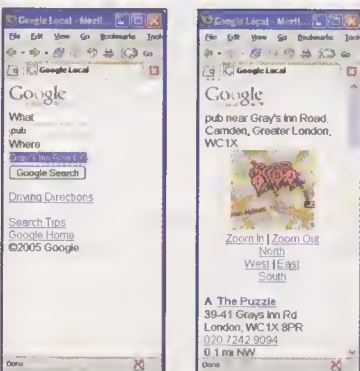
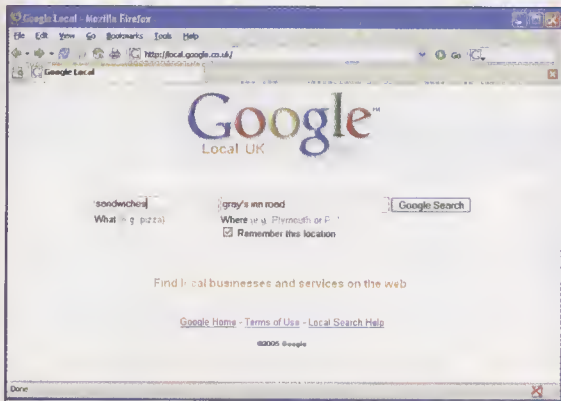
"There ain't no such thing as a free lunch, Dave. RSS was just a temporary free lunch like the web was in 1994. However, both those parties are over (thank God!) and now we have great free content available to everyone around the world.

"You can cry about it all you want, but this train has left the station – and you're still at the ticket counter bitching about needing a ticket."

Dave, who isn't the kind of man to take something like that sitting down, hit back with: "How the writers get paid is a problem you created, not me. It's not up to me to solve it, Jason – that's your job. What exactly is wrong with the way the BBC and *NY Times* do it? They write good one- or two-sentence summaries and link to the full story from the feed, and the ad is there, not in the feed. Jason, think about it – RSS itself is an advertising medium, if you use it correctly."

Obviously neglecting the fact that the dear old Beeb would never take adverts, Dave is clearly positioning himself in the summary feed camp. We'll have to wait and see if RSS remains an advert-free sanctuary or becomes the hottest web billboard on the block.

Google Local  
– find out about  
stuff around you



Above: Google  
Local integrates  
with Google Maps  
so you can see  
where things are

Use Google Local  
with a compatible  
mobile phone

Lost? GL will get  
you back on the  
right track

Is that an  
advert in your  
previously  
sponsorship-  
free RSS feed?



SUSAN  
PEDERSON-BRADBURY

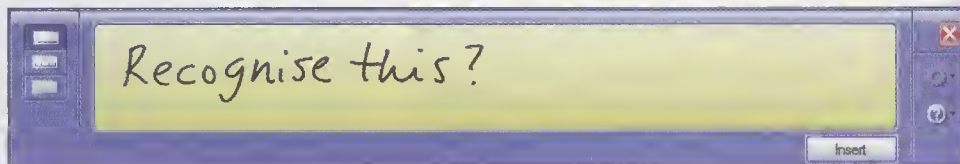
Susan has been a Windows user ever since gleefully abandoning MS-DOS 4.01 in the early 1990s. A former staff news writer for *PC Advisor*, she toiled under the crash-prone Windows 95 and is now a freelancer who is always on the hunt for a handy bit of XP shareware. Email windows\_advisor@idg.com with your comments, suggestions and tips.

# Take one tablet...

Once again Microsoft's groundbreaking pen-based format is at centre stage, but has it been worth the wait? Let's take a look at the latest developments

Computing, like fashion and home decorating, is all about the Next Big Thing. One minute you're in your flares sitting on a shag throw-rug, pounding away on your 16K Spectrum; the next, you're in your flares sitting on a shag throw-rug, pounding away on your 1GB laptop. Okay, perhaps some of the Next Big Things have been recycled once or twice. But what about the Next Big Thing that just never seems to get here?

It was way back in 2000 that Bill Gates first unveiled the tablet PC. Since then, there have been plenty of breathless predictions of how we were all going to rush to embrace this revolutionary form



**Microsoft has made major improvements to the Text Input Panel - it's now a breeze to use**

**Save all your important notes and doodles with Windows Journal**

factor. Microsoft's operating system, Windows XP Tablet PC Edition, was initially greeted with enthusiasm - drawings and scrawls could finally be quickly and easily converted to digital format! Brilliant.

Unfortunately, its promise was undermined by disappointing hardware. This let down the software side with dreadful battery life and poor processor speed. Tablet PCs were far more expensive than conventional laptops and their digital ink technology worked with only a few software applications. Why pay more to get little - or less - in return?

## Niche work if you can get it

Over the next few years, Gates continued to tell us that the tablet's day would come - but sales could only limp along. Microsoft kept improving the operating system, but tablet hardware was stuck squarely in a niche market, appealing only to a few demographics: mobile business professionals, retail staff, healthcare providers and field engineers.

Recently Microsoft has been working with hardware manufacturers to reduce the price tag. We've started to see systems that look like regular notebooks, with the features of a tablet PC thrown in. And they don't cost much more than a normal laptop.

At this year's Windows Hardware Engineering Conference in Seattle, Mr

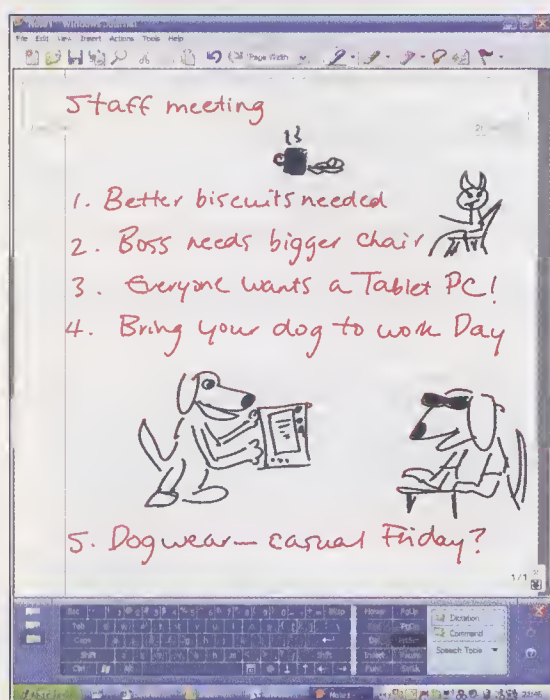
Gates once again pushed the tablet PC to centre stage. He previewed a prototype codenamed Haiku: an A5 device with an eight-hour battery life and a 6in screen. It weighs less than 2lbs and is thinner than 10 sheets of paper - perfect for the lucrative education market, everyone thought.

Microsoft hopes the Haiku will ship in 2007, but it's still trying to find a manufacturer who can make and sell the device for between £250 and £400. It's becoming clear that the company wants to get the tablet PC out there in a variety of forms, from full-featured notebooks to pared-down digital scratchpads - and everything in between.

But what exactly do you get? My husband, sick of lugging a heavy notebook around on business trips, finally succumbed to the lure of a slim tablet. So in addition to inheriting our household's superior laptop, I've also had a chance to play around with its shiny replacement. Happy days.

## TIP dancing

The latest OS - Windows XP Tablet PC Edition 2005 - is not merely more usable than its predecessors. The digital ink concept is now an integral part of the design, leading to a more natural writing experience. For instance, the Tablet Input Panel (TIP) used to be pinned to the bottom of the screen, making it irritating to





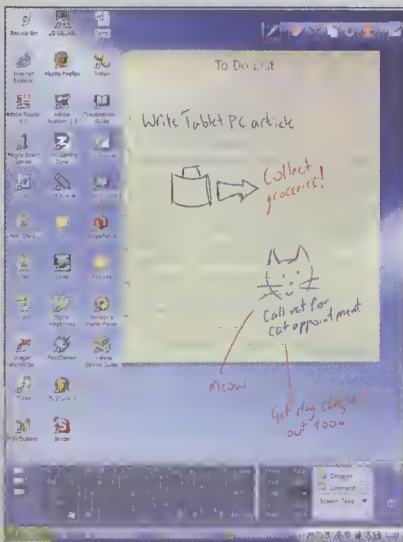
## The tablet experience

So far, much of the software for the tablet PC platform has come in the form of add-ons to existing products that simply let you use your pen with it. Tablet PC owners have been itching for some goodies all of their own. This spring, Microsoft obliged with the Experience Pack, a free bundle of pen-enabled applications designed exclusively for tablet systems.

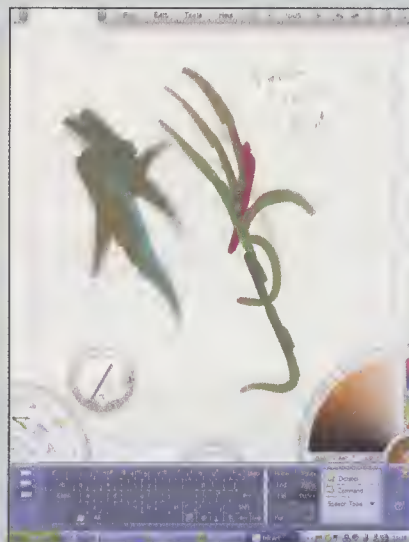
The Experience Pack includes Ink Desktop – a sticky-notes-style application that lets you jot things down directly on the desktop instead of having to open an application. It also includes version 2.0 of its Snipping Tool, which can capture a chunk of your screen for use in other applications. This allows you to circle part of a web page, for example, and then email the clipping to a friend.

Artists, architects and designers who are attracted to the tablet PC for its creative possibilities will enjoy playing around with Ink Art, a drawing application that acts as a sort of digital easel, complete with a selection of canvases and drawing tools. Because the screen is pressure-sensitive, you can achieve far more natural results than with many other digital input systems.

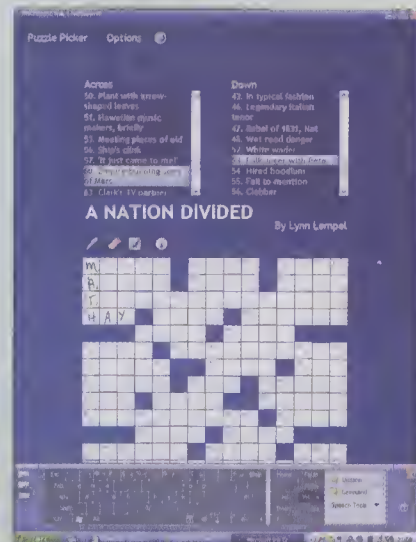
Music fans will benefit from a special pen-enabled skin for Windows Media Player, as well as the Media Transfer tool, which makes it easier to copy files from a desktop system over to your tablet PC. Finally, you get an application that seems to be an excellent fit for tablet aficionados: the Ink Crossword. It comes with a dozen puzzles and every day you can download a new one to wrestle with.



Forget fiddly bits of paper and jot down your 'to do' list on the Ink Desktop instead



Go on. Grab a pen and release that inner Van Gogh with Ink Art



Ditch Sudoku – get into Ink Crossword. Now, what's another word for logophile?

enter handwritten data into fields at the top of the page. Now it can be shifted wherever you like, so you don't have to keep moving your hand back and forth across the screen to jump between panel and application.

The TIP also provides real-time handwriting character recognition. This allows you to fix mistakes and choose the correct word before your phrase is inserted into the application.

Microsoft has stated that users shouldn't bother trying to translate every single instance of handwriting into text. That would be tedious and time-consuming, defeating the whole point of the tablet, which is to make your life easier.

However, I found the handwriting recognition was impressive enough to make translating a far from onerous task. Its context awareness gives you far more accurate results for email and website addresses, as well as filling in forms.

### Office help

Version 2005 also offers you built-in integration with Office 2003. The digital ink features for OneNote, in particular, are really impressive. Windows Journal is also a great, straightforward note-taking program with a lot of flexibility.

Voice-recognition software is included, making this pretty much

the perfect OS for my husband, who prefers never to type. I find that I work faster when I type than when I write by hand or speak so, despite the tablet's charms, I won't be rushing to pick one up – at least until the price comes down a bit further.

There are rumours that Microsoft may try to squeeze tablet PC functionality into Longhorn – its much-anticipated, much-delayed next-generation Windows OS, now scheduled for late 2006. If the software giant can hit that deadline, it will move the tablet PC into the mainstream market. Then it just might become the Next Big Thing after all. Finally. ☒

# Mind over meta

Metadata's back, and this time it's useful. Get ready for Longhorn and save yourself some work right away by organising documents

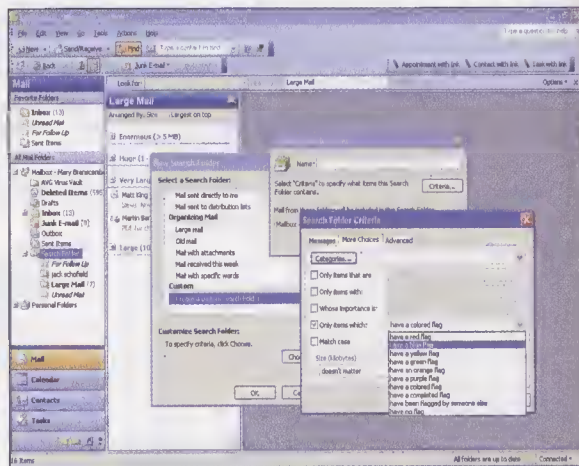
The next version of Windows, Longhorn, will make it easier to find things by borrowing a few tricks from Outlook. But if you already use Search Folders to organise email, Virtual Folders will look very familiar.

Grouping files in Explorer so you can see who wrote them or when you worked on them is just like organising emails in your inbox by sender or conversation instead of the order they arrived. Longhorn will make it sleeker, but you can already do this using Explorer in

Windows XP. It takes a few steps to make the most of it and searching by metadata – data about data – works best if you input more information to your files at the outset.

## Better data

To add metadata, use Explorer or the Office program with which you created the file. I use Explorer as it gives a good overview of how much information is in files already. If files are open Explorer locks their properties, so never try to edit them in two places at once.



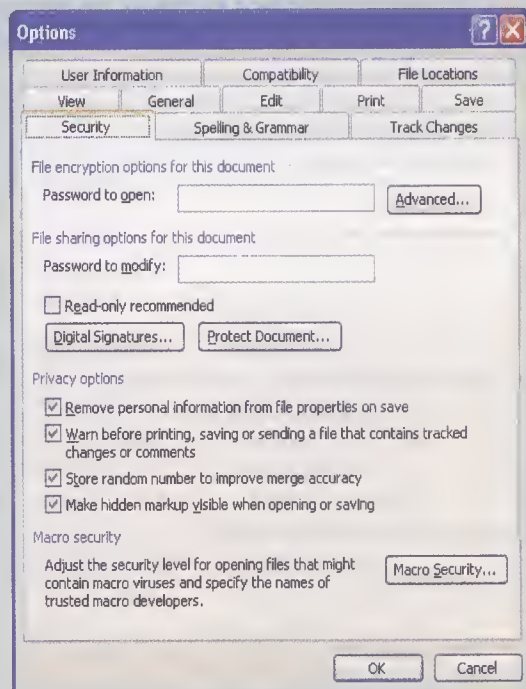
## Skip the details

At this point, you may be feeling a little insecure about what other people are able to find out from your documents. Don't worry, you don't have to lose out on the benefits of metadata because you need to pass files on. Simply strip out the obvious details before they go.

To scrub out information in Word, Excel or PowerPoint, choose Tools, Options, Security and select 'Remove personal information from file properties on save'. While you're at it, go to the Save tab in the Options dialog and turn off fast saves. You're more likely to have problems with fast saves because they merely cross out deleted text instead of removing it. And if you ever use the Track Changes option on the Tools menu in Word, remember to choose 'Accept all changes' on the Reviewing toolbar when you finish. Having people see what you didn't want in the document can be as embarrassing as them knowing you give all the files in your least favourite project the keyword 'timewasters'.

To remove rather more, go to [www.microsoft.com/downloads/details.aspx?familyid=144e54ed-d43e-42ca-bc7b-5446d34e5360](http://www.microsoft.com/downloads/details.aspx?familyid=144e54ed-d43e-42ca-bc7b-5446d34e5360) and download the Remove Hidden Data add-in. After you install it, choose File, Remove Hidden Data to create a new version of the file without any of your personal details. That could include the name of your printer as well as your name, so it's an important security precaution.

If you simply want to see what's there, try Workshare Trace, from [www.workshare.com/products/trace](http://www.workshare.com/products/trace) or from the cover disc. It doesn't remove metadata and the warnings can be alarming for things as simple as abbreviations that trigger a SmartTag in the document, but having it there reminds you to be careful with documents you plan to share.



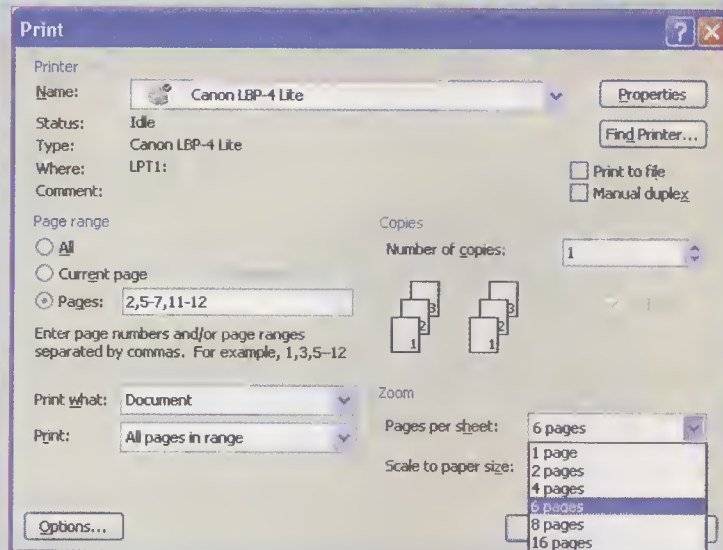
Take out details by hand – or get Word to do it for you

MARY BRANSCOMBÉ

As a freelance writer, Mary has spent more than 13 years in her untiring pursuit of the perfect office suite, along with any other tools that make it easier to turn your documents into what you really want to say. Email [office\\_advisor@idg.com](mailto:office_advisor@idg.com) with your comments, suggestions and tips.



## Power printing



Pick the pages, order and size you want to print at. It's not hard

The Print dialog box in Office applications gives you hints about printing individual pages, so it's not too hard to figure out that putting 1, 9, 11-12 into the Pages box under Page range gives you only those four pages. You don't have to print the document in order, though: type 9, 12, 11, 1 to get the sheets in that sequence.

To print in reverse order, simply write in 5-1 instead of 1-5. And if you know you want the final two pages but you haven't counted how many there are in total, just put in 2-. This works the other way around - you can miss out the 1 and ask for -5 to get the first five sheets.

Don't want to take up a whole sheet of paper for every page? You don't have to. If you've got a long document that you need to take with you for reference and you can read smaller text, cram two, four, six, eight or even 16 pages on to each sheet. Use that to create postcards or invitations without the extra work of using a DTP (desktop publishing) package. Under Zoom in the print dialog, choose the degree of shrinkage on the 'Pages per sheet' drop-down.

You can even use both sides of the paper without needing an expensive printer. Tick Manual duplex, work out which way round and which way up the paper goes into the printer, then turn the sheet over when Word tells you to. Easy.

In Explorer choose Details from the View menu and right-click on any of the columns of information to get a list of file properties. For Office documents Author, Title and Subject are the most useful. In Windows XP you can't see the Keywords in Explorer's Details view. Subject isn't available from the default list, but can be accessed by clicking 'More...'

### Playing tag

You can edit any of the properties from Explorer or tag multiple documents by selecting them all, right-clicking and choosing Properties. On the Summary tab, click Advanced and select the field you want to edit.

The columns make it easy to sort the Details view, but you can't get groups that way. Switch to Icon view, right-click on the Explorer pane and choose Arrange Icons By to select which property to sort by, then right-click again and choose Arrange Icons By, Show In Groups.

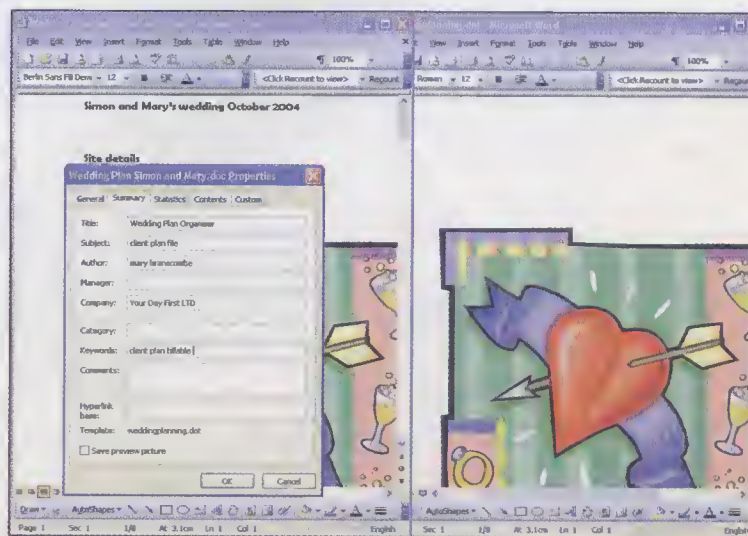
The most effective way to add properties is to put them in templates. Normal.dot will record your name in its metadata, but not a lot else.

If you make your own templates for different types of projects choose File, Properties and fill in the subject or keywords in advance. You can do the same for templates you download from the Office Online site (<http://office.microsoft.com>).

They open as a new file. Use File, Save As and pick Word Template as the file type. Anything you add to the File Properties will be in files you create with the template. To make sure you add info for each file choose Tools, Options, Save and tick 'Prompt for document properties'.

Above left: Outlook 2003 already has the virtual folders we'll get in Longhorn

Right: add metadata to a document template and you'll get it in all the documents you create from the template



Advisors continues on page 156

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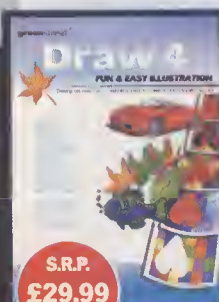
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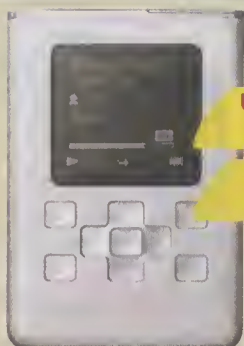
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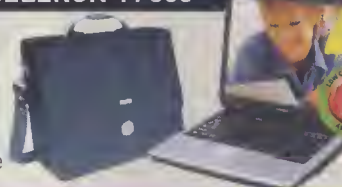
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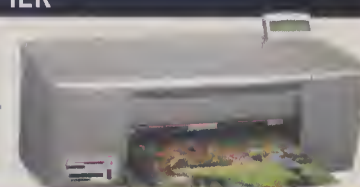
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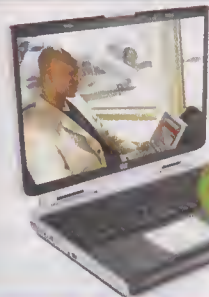
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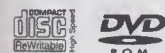
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3F91PV	Tecra M2 P-M 725 1.6GHz Centri	1045.78	899.99
3MX0PV	Tecra M3 P-M 760 2.0GHz 512MB	1523.98	1297.00
3NCOPV	Tecra M3 P-M 770 2.13GHz 512MB	1687.30	1436.00

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3M2XPV	Power F1 Cel D335 2.8GHz 256MB	351.33	299.00
3LCTPV	Power F1 Desktop PC Cel D330	328.99	279.99
3M2WPV	Power F1 Cel D335 2.8GHz 256MB	340.74	289.99
3M2RPV	Power M2 AMD 2800+ 256MB 40GB	280.99	239.14
3M2JPV	Veriton 7700G P4 2.93GHz 512MB	585.98	498.71
<b>APPLE MAC MINI</b>			
3L8MPV	Mac mini G4 1.25GHz 40GB Combo	338.99	288.51
3L8NPV	Mac mini G4 1.42GHz 80GB Combo	398.99	339.57
<b>FUJITSU-SIEMENS</b>			
3L5RTS	Scenic X102 P4 2.93GHz 256MB	421.81	358.99
3L5NTS	Scenic X102 Cel D330 2.66GHz	304.31	258.99
3L5QTS	Scenic X102 Cel D330 2.66GHz	333.69	283.99
<b>HP PAVILION DESKTOPS</b>			
3L4HPV	a810 P4 515 256/80 XPH	420.00	357.45
3L4JPV	t830 P4 515 512/160 XPH	539.99	459.57
3L4QPV	M1250 Ath 3200+ 512/200 XPH	740.00	629.79
3L4NPV	1860 P4 540 512/200 XPH	740.00	629.79
3L4BPV	M1261 P4 530 512/160 XPH	910.00	774.47
3L4DPV	M1280 P4 540 1GB/250GB XPH	See Website	
<b>HP DC7100 CONVERTIBLE MINI TOWER</b>			
3BSBPV	HP Compaq dc7100 CMT P4-520	646.25	550.00
3BSGPV	HP Compaq dc7100 CMT P4-520	587.99	500.42
3BSQPV	HP Compaq dc7100 CMT P4-530	705.98	600.84
3BSDPV	HP Compaq dc7100 CMT P4-530	722.98	615.31
3BPNPV	HP Compaq dc7100 CMT P4-540	814.99	693.61
3BSFPV	HP Compaq dc7100 CMT P4-540	768.99	654.46
3BLYPV	HP Compaq dc7100 CMT P4-550	931.28	792.58
<b>HP DC7100 SMALL FORM FACTOR</b>			
3BS6PV	HP dc7100 SFF P4-520	622.98	530.20
3BSHPV	HP dc7100 SFF P4-520	586.99	499.57
3BS7PV	HP dc7100 SFF P4-530	687.98	585.52
3BS8PV	HP dc7100 SFF P4-530	705.98	600.84
3BSJPV	HP dc7100 SFF P4-530	641.98	546.37
3BS9PV	HP dc7100 SFF P4-540	764.99	651.06
3BLVPV	HP dc7100 SFF P4-550	911.98	776.16
39D0PV	HP dc7100 P4 520 256mb/40 XPP	579.06	492.82
39D2PV	HP dc7100 P4 520 512mb/80 XPP	652.27	555.13
39D3PV	HP dc7100 P4 530 512mb/80 XPP	703.82	599.00
<b>HP DX2000 MICROTOWER</b>			
3BPBPV	HP Compaq dx2000 MT Cel 325	423.98	360.84
3BPDPV	HP Compaq dx2000 MT Cel 325	438.99	373.61
3BPFPV	HP Compaq dx2000 MT Cel D-320	421.98	359.14
3BPGPV	HP Compaq dx2000 MT Cel D-320	352.99	300.42
3BSSPV	HP Compaq dx2000 MT P4 2.8E	575.98	490.20
3BPHPV	HP Compaq dx2000 MT P4-3.0E	586.99	499.57
3BK0PV	dx2000M/C2.6/40afcd/256F/17F	382.99	325.95
3BK4PV	dx2000M/C2.6/40afcd/256F/37F	414.98	353.18
3BKBPV	dx2000M/C2.6/40afcd/256F/47F	456.99	388.93
3BKCPV	dx2000M/P2.8A/40bfc/256F/17F	461.98	393.18
3BKDPV	dx2000M/P2.8A/40bfc/256F/37F	485.99	413.61
3BRZPV	dx2000M/P2.8A/40bfc/256F/47F	538.98	458.71
3BKGPV	dx2000M/P2.8A/40bfc/256F/47F	538.98	458.71
<b>HP DX6100 MICROTOWER</b>			
3BPJPV	HP Compaq dx6100 MT P4-520	609.98	519.14
3BSKPV	HP Compaq dx6100 MT P4-520	557.17	474.19
3BSLPV	HP Compaq dx6100 MT P4-520	626.99	553.61
3BSMPV	HP Compaq dx6100 MT P4-520	638.98	543.82
3BSNPV	HP Compaq dx6100 MT P4-520	656.09	558.38
3BSPPV	HP Compaq dx6100 MT P4-530	737.99	628.08
3BPKPV	HP Compaq dx6100 MT P4-540	681.99	580.42
3BPLPV	HP Compaq dx6100 MT P4-540	740.25	630.00
3BPMPV	HP Compaq dx6100 MT P4-540	784.99	668.08
<b>SONY VAIO</b>			
2GDFFV	M1 P4 3.06 512MB 160G DVD+/-DL 15"	821.32	699.00
36DDPV	V2M P4 3.0HT 512MB 200GB DVD+/-DL 17"	1291.32	1099.00
3MR8PV	V3S P4 3.4HT 512MB 250GB DVD+/-DL 20"	1654.98	1408.50
3MJ1PV	RA304 P4 560HT 1G/500GB Home Server	1634.98	1391.48

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quicklink	BELKIN	£ inc VAT	£ ex VAT
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18LJPV	UK 4 Way Power Strip	8.92	7.59
25M0PV	6-Way Economy Surge Protector	9.13	7.77
2D48PV	4-Way Home SRS SurgeMaster 2m	7.64	6.50
3BFXPV	PureAV Home Cinema Surge	15.51	13.20
2D4JPV	Travel Surge with C8 Connector	17.19	14.63
2D41PV	8-Way Max SRS SurgeMaster	23.44	19.95
3B9NPV	SurgeMaster 5-Way	27.80	23.66
2D3WPV	7 Way Gold SRS SurgeMaster	30.21	25.71
2C9WPV	6-Surge Protected Sockets	16.45	14.00

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18LQPV	Regulator Pro Silver 350va	43.23	36.79
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The ViewSonic VE710 LCD display not only brings images to life with vivid colour and outstanding realism. Its stylish design is also sure to catch your eye. Delivering ViewSonic's renowned image quality, it enhances your viewing comfort with high brightness and progressive styling.

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- 450:1 Contrast Ratio
- 25ms Response Time
- Three-year limited warranty

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Providing smooth moving images ideal for video and games, Iiyama combine DVI and VGA connectivity to bring a monitor ideal for the home or office

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- 1280 x 1024 resolution
- 10ms response time
- 350:1 contrast ratio
- Integrated speakers



**iiyama**

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Offering an excellent contrast ratio of 800:1, combined with a fast response time of 23 ms the Prolite E485S is ideal for all types of applications

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- 1280 x 1024 resolution
- 800:1 contrast ratio
- 23ms response time
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**SONY**

X-black LCD

### quicklinx 3MT6PV

X-Black LCD technology delivers photos and video with true-to-life intensity. Vivid video game animation pulls you into the action

- Super high brightness combined with a superior contrast delivers an incredible image quality and precision.
- Gamma and sRGB colour-space controls for easy image adjustments
- Simple setup - Plug & play and the Sony automatic image adjustment feature gives hassle-free configuration.
- Ultra-fast panel (response time :12ms) - ideal for gaming!
- SXGA 1280x1024 resolution

- Incredible image quality and precision • 12ms response time
- Simple setup • Automatic image adjustment

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### AL1715MS 17" TFT DISPLAY



**SAMSUNG**

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The SM710V delivers exceptional performance with vibrant, detailed images.

- 1280 x 1024 Resolution
- 25ms Response time
- 500:1 Contrast Ratio
- MagicBright Display
- 3 Year Warranty



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The dynamic response rate of only 12ms means that you can create picture perfect video playback and enjoy the best quality picture of action packed digital movies

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- 450:1 contrast ratio
- 12ms response time
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### 19-INCH TFT DISPLAY

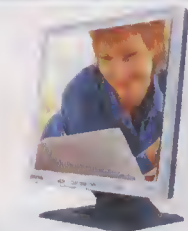
### FP731 17" SILVER/BLACK DISPLAY



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- 19.0" (48.3cm) display
- 0.294 mm X 0.294 mm dot pitch
- 1280 X 1024 @75 Hz maximum resolution
- Resolution(Support) 640 X 350, 720 X 400, 640 X 480, 800 X 600, 832 X 624, 1024 X 768, 1152 X 864, 1280 X 1024
- 2W X 2 Internal Speaker



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The FP731 is ideal for environments where space is a luxury

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- 450:1 contrast ratio
- 25ms response time
- Wall mountable

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3LD3PV	AL1715MS 17" TFT Display Silver	147.99	125.95
3KB2PV	AL1913S 19" TFT Display Silver	201.91	171.24
<b>AG NEOVO</b>			
3J5LPV	F415 15" TFT Display Black	123.36	104.99
3JWZPV	F419 19" TFT Display Black DVI	198.58	169.00
<b>BENO</b>			
2VLNPV	FP731 17" Silver/Black Display	148.99	126.80
3JBVPV	FP 767-12 17" TFT Display	173.14	147.36
3MJMPV	FP 937S+ 19" LCD Display	339.58	289.00
3J7BPV	FP231W 23" Widescreen TFT	1141.99	971.91
<b>DABSVLUE</b>			
3KK2PV	19" TFT LCD 1280x1024	204.99	174.46
<b>IYYAMA</b>			
3JX1PV	Prolite E380S-S 15" TFT Display	147.67	125.68
3K8NPV	Prolite E435S-S 17" TFT Display Silver	192.84	164.12
3K8MPV	E435S-B 17" TFT Display Black	196.42	167.17
3K8PPV	E435S-W 17" TFT Display Ivory	196.51	167.24
2V9SPV	Prolite E481S-S 19" Silver	278.99	237.44
2V9LPV	Prolite E481S 19" TFT Ivory	278.99	237.44
38F7PV	C171WT 17" Widescreen	345.99	294.46
31F1PV	Prolite E511 20.1" TFT Monitor black	631.99	537.86
30XGPV	Prolite E511 20.1" TFT Monitor Silver	631.99	537.86
2VB0PV	C480T 19in LCD-TV	702.99	598.29
31JPPV	Prolite H540S 21.3" TFT Black	965.99	822.12
356PPV	Prolite H540S 21.3" TFT Ivory	983.99	837.44
<b>LG</b>			
36GYPV	L1715S 17" TFT Display Silver	154.98	131.90
2X0SPV	L1520B 15" TFT Monitor Black	153.11	130.31
2TK1PV	1720B 17" TFT Monitor Blk/Slv	198.99	169.36
2X0VPV	L1710M 17" TFT Monitor Speaker	211.41	179.92
3N52PV	L1780U 17" TFT Display	282.00	240.00
23SWPV	L2010P 20.1" TFT Display	545.98	464.67
<b>PHILIPS</b>			
3JJ2PV	150S5FS 15" LCD Display Silver	144.57	123.04
39BKPV	170S5FB 17" LCD Display Black	177.34	150.93
3JJ3PV	170S5FG 17" LCD Display Beige	176.24	149.99
3JKWVP	200P4SS 20" LCD Display	666.99	567.65
<b>RELISYS</b>			
28L5PV	TL565 15" MultiMedia TFT	131.27	111.72
2DQPPV	TL766B 17" TFT in Black	149.99	127.65
2BGPPV	TL766 17" TFT Monitor	158.48	134.88
2ZDVPV	TL540S 15" TFT Monitor Slv/Blk	251.99	214.46
39PCPV	TL995A 19" Multimedia LCD	231.45	196.98
2M2PPV	RLT1720BS 17" Widescreen TFT	270.19	229.95
<b>SAMSUNG</b>			
2P5WVP	SM152v 15" TFT Monitor Silver	134.98	114.88
3J37PV	SM510N 15" TFT Display Ivory	136.32	116.02
3J3BPV	SM510N 15" TFT Display Silver	136.31	116.01
3796PV	SM710V 17" TFT Display Silver	149.99	127.65
2VWPPV	SM152N 15" TFT Display Silver	193.86	164.99
3798PV	SM710V 17" TFT Display Ivory	192.70	164.00
3J3CPV	SM510MP 15" TFT Display Silver	225.76	192.14
36LMPV	SM710MP 17" TFT Monitor with Tuner	239.56	203.88
3J3RPV	SM910N 19" TFT Display Silver	257.99	219.57
3J3VPV	SM930MP 19" TFT Display Silver	441.99	376.16
25QJVP	SM213T 21" TFT Monitor Silver	632.98	538.71
36NQPV	CK32PSNS 32" TFT in Silver	1526.97	1299.00
2VWXPV	SM403T 40" TFT Display Silver	2576.93	2193.14
<b>SONY</b>			
2PJ8PV	SDM-S73B 17" TFT LCD black	171.50	145.96
2PJ7PV	SDM-S73 17" TFT LCD	187.05	159.19
36LVPV	SDM-S74S 17" TFT Display	223.91	190.56
36LTPV	SDM-S74B 17" TFT Display black	224.14	190.76
2PJWVP	SDM-X53 15" TFT LCD	237.67	202.27
3MSZPV	SDM-HS75B 17" black	240.73	204.88
3MT0PV	SDM-HS75S 17" Silver	240.73	204.88
2PJ9PV	SDM-X73 17" TFT LCD	252.63	215.00
2PJCPV	SDM-X73B 17" TFT LCD black	264.99	225.52
2PJ4PV	SDM-S93B 19" TFT LCD black	270.99	230.63
3MT3PV	SDM-HS75PS 17" Silver	279.99	238.29
2PJ3PV	SDM-S93 19" TFT LCD	281.99	239.99
3G7DPV	SDM-HX73S 17" TFT Display	293.99	250.20
3MT1PV	SDM-HS75PB 17" black	298.99	254.46
36LWVP	SDM-S94S 19" TFT Display	311.38	265.00
36LXPV	SDM-S94B 19" TFT Display black	316.08	269.00
3MT4PV	SDM-HS95B 19" black	342.99	291.91
3MT5PV	SDM-HS95S 19" Silver	342.99	291.91
3G7BPV	SDM-HS74P 17" X-black TFT	345.99	294.46
2PJ5PV	SDM-X93 19" TFT LCD	355.99	302.97
2PJ6PV	SDM-X93B 19" TFT LCD black	355.99	302.97
3MT6PV	SDM-HS95P/B 19" black	411.99	350.63
3MT9PV	SDM-HS95P/S 19" silver	411.99	350.63
3G7FPV	SDM-HX93B 19" TFT Display	433.58	369.00
3LHNPV	SDM-S204EH 20" TFT Display	643.00	547.23
3LHMPV	SDM-S204EB 20" TFT Display	665.99	566.80
394TPV	SDM-P234 23" Widescreen LCD	1254.99	1068.08
<b>VIEWSONIC</b>			
3HJ1PV	VA521 15" LCD Display	130.55	111.11
395LPV	VE710S 17" TFT Display	139.99	119.14
395MPV	VE710B 17" TFT Display	161.23	137.22
3KWWVP	VX912 19" TFT Display Silver/Black	236.99	204.25
395RPV	VG910B 19" TFT Display Black	337.98	287.65
2VJXPV	VP201b 20.1" LCD in Black	624.00	531.06
2VJVPV	VP201s 20.1" LCD in Silver	586.39	499.00

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## HANDHELDS

QUICKLINK	HP iPAQ	£ inc VAT	£ ex VAT
380JPV	iPAQ rz1710 Handheld PDA	170.99	145.52
3JQ5PV	iPAQ hx2110	276.11	234.99
3JFKPV	iPAQ RZ1710 & Tomtom	281.99	239.99
380KPV	iPAQ rx3715	289.98	246.80
3JD6PV	iPAQ hx2410	337.99	287.65
380LPV	iPAQ 4700	359.98	306.38
3JD7PV	iPAQ hx2750	411.25	350.00
380MPV	iPAQ h6340	438.80	373.45

### HP iPAQ ACCESSORIES

2R7FPV	Charger Adaptor (Barrel)	15.99	13.61
3HWJPV	iPAQ Stylus 3 pack	18.57	15.80
3HHYPV	Universal Stylus Kit	18.79	15.99
2R71PV	Slimline Nylon Case	19.99	17.01
34XHPV	Expandable Nylon Case	19.99	17.01
2R7SPV	Stylus 3-Pack iPAQ h2210	24.99	21.27
2R70PV	Zippered Leather Case	26.99	22.97
2R72PV	Slimline Leather Holster Case	26.99	22.97
2R7LPV	Auto Adapter	27.99	23.82
3J5JPV	Leather Flip Case	27.99	23.82
3K4FPV	iPAQ Thumb Keyboard	33.99	28.93
2R7MPV	SD Card - 128MB	34.99	29.78
2R6VPV	Expansion Pack CF Card	35.99	30.63
2R73PV	3 Pack Screen Protectors	35.99	30.63
2R7KPV	h1900 series battery 900mAh	38.99	33.18
2R74PV	Removable Battery 920mAh	39.99	34.03
3K4HPV	AC Adapter 4 Head Kit	41.00	34.89
2R7TPV	USB/Serial Desktop Cradle	41.99	35.74
2R7XPV	USB Desktop Cradle	41.99	35.74
2R6ZPV	Premier Leather Case	43.99	37.44
2R7CPV	Battery Charger for Rem Batt	43.99	37.44
2R7QPV	Slim keyboard h5000/3900 serie	47.99	40.84
3FVWPV	Cradle Kit	47.99	40.84
3HWKPV	USB Desktop Cradle	52.99	45.10
2R7GPV	h5000 series slim battery	60.99	51.91
3K4QPV	Bluetooth Stereo Headphones	60.99	51.91
3KBDPV	hx4700 standard battery	61.99	52.76
3KBPV	h6300 series standard battery	62.99	53.61
2R75PV	Removable Battery 1800mAh	67.99	57.86
2R6SPV	CF Card Expansion Pack Plus	70.99	60.42
2R7NPV	SQ Card - 256MB	74.99	63.82
2R7PPV	Foldable Keyboard (UK)	75.99	64.67
32YRPV	iPAQ Rugged Case For all iPAQS	75.99	64.67
2R7HPV	h5000 series extended battery	76.99	65.52
3K19PV	iPAQ Bluetooth Folding Keyboard	82.99	70.63
365JPV	56K CF Modem	95.99	81.69
2R6PPV	PC Card Expansion Pack Plus	108.99	92.76
3KBPV	hx4700 extended battery	122.99	104.67
2R6WVP	Expansion Pack with Qual PC	133.99	114.03
3HWHVP	1GB SD Memory Card	347.80	296.00

### PALM

31BQPV	Zire 21	70.50	60.00
34W9PV	Zire 31	99.99	85.10
3FXWPV	Tungsten T5	219.99	187.23
3GC7PV	Zire 72 GPS Solution	334.99	285.10

### PALM ACCESSORIES

3H9YPV	Travel Cable	7.66	6.52
27WHVP	Zire Stylus 3-Pack	8.70	7.41
3H9XPV	Stylus Pack for Tungsten E/T5	10.01	8.52
3HB0PV	Vehicle Power Charger	10.62	9.04
3542PV	Slim Leather Case	13.79	11.74
31FLPV	Mobility Kit	15.34	13.06
3H9ZPV	Travel Charger	16.36	13.93
3F3MPV	Car Charger 5.2v for Treo 600	17.23	14.67
3F3TPV	USB Docking Cradle	17.39	14.80
3F3VPV	Leather Belt Clip Case	17.40	14.81
3532PV	Zire 72 Hard Case	18.24	15.53
3F3NPV	International AC Charger	20.37	17.34
3H9QPV	Tungsten T5 Hard Carry Case	21.52	18.32
373QPV	64MB Expansion Card	23.58	20.07
30N2PV	128MB Expansion Card	40.85	34.77
3HB2PV	Wireless Keyboard	41.26	35.12
3543PV	256mb Expansion Card	44.88	38.20
38HYPV	Power To Go Charging Pack	47.76	40.65
3H9RPV	512MB Expansion Card	69.32	59.00
3FXXPV	WiFi Card	79.43	67.60

### FUJITSU SIEMENS

3770PV	Pocket Loox 420	260.99	222.12
3FF9PV	Pocket Loox 710	326.99	278.29
3FFBPV	Pocket Loox 720	339.99	289.36

## GPS SOLUTIONS & ACCESSORIES

QUICKLINK	TOM TOM	£ inc VAT	£ ex VAT
3641PV	Navigator 3 - Standard GPS UK	130.23	110.84
33PYPV	Navigator 3 - Bluetooth GPS UK	164.95	140.39
3FV3PV	Mobile for Symbian 60 Phones	178.94	152.29
3601PV	Go - Portable GPS Navigation	420.00	357.45
<b>ROAD ANGEL</b>			
3KXWPV	Road Angel - Blackspot and Camera Alert	399.99	340.42
<b>NAVMAN</b>			
378KPV	PiN	383.99	326.80
3GSDPV	iCN 510	347.98	296.16
3GSCPV	iCN 650	819.77	697.68

## iPAQ RX3715 POCKET PC HANDHELD PDA



**INTEGRATED CAMERA**

### quicklink 380KPV

The HP iPAQ rx3715 Mobile media companion is powered by the MS Mobile software and lets you enjoy your music, photos, videos and games wherever you go.

Never miss a memory-capture, share and print life's best moments using the integrated HP Photosmart camera with photo's or video. This exceptionally versatile Pocket PC also features integrated WLAN and Bluetooth capabilities enabling you to connect with other devices, stay in touch with friends and with what's going on.

•Microsoft Windows Mobile 2003 Second Edition Software  
•Samsung 300Mhz •3.5" TFT •BT, WiFi, IRDA

only **£239.55** (£206.79 ex VAT)

## iPAQ HX4700 POCKET PC 2003



**INTEGRATED WIRELESS**

### quicklink 380LPV

The exceptional HP iPAQ hx4700 pocket PC is a MS powered pocket PC designed with a visually stunning VGA colour display and a broad range of feature-rich applications.

With integrated wireless capabilities, enhanced security and dual-slot expansion, the hx4700 is an essential business tool for productivity both in & out of the office. With the new Intel PXA270 processor and a new 4.0" transreflective TFT VGA 64K colour display, the HP hx4700 delivers outstanding power and graphics performance to a large high quality image size.

•Microsoft Windows Mobile 2003 Second Edition Software  
•Intel 624Mhz •4" TFT •BT, WiFi, IRDA

only **£359.98** (£306.38 ex VAT)

## TUNGSTEN T5

## N35 GPS



**palmOne**

### quicklink 3FXWPV

The Tungsten™ T5 reinvents mobile office productivity. With Drive Mode and 256MB of memory, share files with PCs (Windows or Mac). Work with Word and Excel files and view PowerPoint® files. The 480 x 320 screen delivers outstanding visual comfort. Seamlessly sync with Outlook® and connect to Bluetooth® devices.



**acer**

### quicklink 3N50PV

The new Acer N35 is a complete navigation system on the palm of your hand: Stylish, compact, powerful. The Acer N35 is based on a Pocket PC that utilizes Microsoft Windows Mobile 2003 Pocket PC Premium Edition and boasts a powerful processor and integrated GPS.

only **£199.99** (£170.21 ex VAT)

## TREO 650 SMARTPHONE

only **£233.82** (£199.00 ex VAT)

## TUNGSTEN E2



**NEW**

**palmOne**

### quicklink 3M9MPV

The Treo™ 650 smartphone is the ideal mobile email expert. It combines easy-to-set-up, wireless email with a compact GSM/GPRS world phone and a Palm OS® organiser.

- Finger-friendly QWERTY keyboard
- Bluetooth® technology
- Built in digital camera



**palmOne**

### quicklink 3NH2PV

Packed with the latest handheld technologies, including Bluetooth® and an extra-sharp, high-resolution colour display. The palmOne Tungsten™ E2 also features non-volatile flash memory for safe storage for your calendar, contacts, documents, photos and videos, even if you don't have time to recharge.

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## GO 500 - PORTABLE GPS NAVIGATION

only **£136.30** (£116.00 ex VAT)



**tomtom**

**HANDS-FREE CALLING**

**BUY NOW PAY MAR 06**

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- Just plug in, switch on & GO
- Simple touch-screen operation
- Clear, accurate turn-by-turn voice instructions
- Compact, portable design; easy to take from car to car
- Crystal-clear 30 graphics
- Door-to-door planning: Find your way to any address in your region/country
- Find your way to any town across Europe using Main Roads of Europe map (17 countries included)
- Hands-free calling via Bluetooth™ connection with mobile phone

•Integrated GPS antenna •Postcode navigation (UK & Ireland)  
•Compact, portable design; easy to take from car to car

only **£469.98** (£399.99 ex VAT)



## WIRELESS MODEM/ROUTER

## ADSL WIRELESS MODEM ROUTER

## NETWORKING



### quicklinx 311VPV

The 3Com® ADSL Wireless 11g Firewall Router combines an ADSL modem, router, 802.11g wireless access point, four-port switch with a PC card.

**INCLUDES FREE PC CARD**

- All-in-one device
- Cost effective internet sharing
- Backwards compatible

3COM



### quicklinx 395KPV

The 3Com® ADSL Wireless 11g Firewall Router combines an ADSL modem, router, 802.11g wireless access point, four-port switch, and firewall to enable up to 253 total (128 wireless) users to economically and securely share a single ADSL connection. Comes with USB adapter.

**INCLUDES FREE USB ADAPTER**

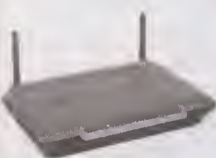
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only **£62.99** ( £53.61 ex VAT )

## ADSL MODEM / WIRELESS-G ROUTER

only **£62.99** ( £53.61 ex VAT )

## DG834GT WITH FREE WG511T



### quicklinx 3K24PV

This one-box solution that lets you share your ADSL Internet connection, files, and peripherals, without cables.

It combines two essential networking functions in one innovative product - an ADSL Modem with a 4-Port Router.

BELKIN.



**802.11G**

### quicklinx 2DMHPV

Achieve speeds up to 108 Mbps! The Netgear DG834GT offers a modem, router, switch, 802.11g 108Mbps access point, and SPI True Firewall. Used with the PC Card it provides total mobility to access your home wireless router, office network, or public hotspots.

NETGEAR

only **£65.80** ( £56.00 ex VAT )

## 802.11g WIRELESS NETWORK PCI CARD

only **£51.44** ( £43.78 ex VAT )

## 802.11g 54Mbps PCI CARD



### quicklinx 2CS5PV

This 802.11g wireless network PCI card works as an ideal standalone to give you instant networking capabilities. It features breakthrough 802.11g technology that makes wireless file transfers and downloads faster than ever before.

BELKIN.



### quicklinx 3119PV

- Works both with IEEE 802.11b and 802.11g products
- PCI card connects desktop PC to Wireless LAN
- Ad-Hoc and infrastructure communication
- Support IEEE802.11b/g transmission mode and up to 54Mbps data rate

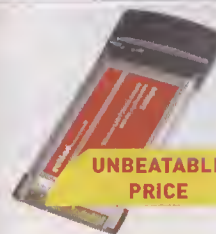
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## 802.11g 54Mbps PCMCIA

only **£14.99** ( £12.76 ex VAT )

## 802.11g 54Mbps USB STICK



### quicklinx 33SWPV

- LAN PC 802.11g 54Mbps
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- Supports WPA, WEP and AES security
- Supports Windows 98SE/Me/2000/XP
- Supports 32bit Cardbus Interface
- Compatible with IEEE 802.11b and IEEE 802.11g

**UNBEATABLE PRICE**

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### quicklinx 39JVPV

- Complies with the IEEE 802.11b and IEEE 802.11g 2.4GHz (DSSS) standards
- Supports 64/128/256-bit WEP, WPA (TKIP, IEEE 802.1x) and AES functions for high level of security
- Supports peer-to-peer communication among any wireless users, no Access Point required

**LOWEST PRICE**

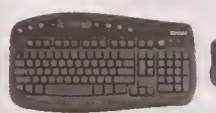
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only **£19.99** ( £17.01 ex VAT )

## MX™1000 LASER CORDLESS MOUSE



### quicklinx 3NFYPV

- Compact wireless keyboard and mouse
- 6+ months of battery life.
- Wireless Freedom
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- Get one-touch access to the functions and files you go to most
- Media Centre
- Enhanced F Keys
- Optical Technology
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**WIRELESS**

Microsoft



### quicklinx 3FPQPV

If you thought smooth tracking optical sensors were an advancement over mechanical ball-based mice, let us introduce you to the mouse that takes precision and performance to a whole new level: the Logitech® MX™1000 Laser Cordless Mouse, the world's first laser mouse.

Logitech

only **£27.31** ( £23.25 ex VAT )

only **£43.47** ( £37.00 ex VAT )

quicklinx	3COM	£ inc VAT	£ ex VAT
27Y0PV	3Com 10/100 Managed NIC	26.13	22.24
2W63PV	OfficeConnect Wireless-G PC Card	41.52	35.34
3KY1PV	OfficeConnect Wireless Access Point	55.52	47.25
395KPV	Wireless ADSL Modem Router & USB Adapt.	62.99	53.61
<b>ACTIONTEC</b>			
178BPV	Wireless PCMCIA PC CARD	24.38	20.75
178HPV	USB Starter Pack	41.21	35.07
37C2PV	11G Wireless Broadband Router	52.26	44.48
<b>BELKIN</b>			
2CS4PV	802.11g Wireless Notebook Card	20.66	17.58
3774PV	802.11g Wireless Print Server	50.53	43.00
36VSPV	125g Wireless PCI Adapter	33.56	28.56
3L8WVP	ADSL2+ Modem with High-Speed	75.00	63.83
31VVPV	802.11g Wireless Client Bridge	49.17	41.85
<b>BUFFALO</b>			
3JK2PV	54Mbps AirStation Wireless Bridge	51.59	43.91
2BL3PV	Broadband Router AirStation	46.94	39.95
3GW2PV	125Mbps Wireless Notebook Adapter	34.53	29.39
<b>OLINK</b>			
2THNPV	Wireless PCMCIA CardBus 11Mbps	19.29	16.42
24JJPV	4-Port Broadband Router	25.10	21.36
31NRPV	DWL-G650+ W/less PCMCIA Card	29.99	25.52
36YNPV	54Mbps Wireless Access Point	45.10	38.38
<b>LINKSYS</b>			
229MPV	Wireless ADSL Modem 4 Port 802.11g	69.33	59.00
2D13PV	Wireless-G PCI Card	33.42	28.44
2D12PV	Wireless-G Access Point	46.64	39.69
2CM7PV	Wireless-G Broadband Router	50.84	43.27
<b>NETGEAR</b>			
2NYGPV	54Mbps Wireless PCI Card	37.95	32.30
2DMGPV	WG511 802.11g Wireless PC Card	34.08	29.00
3KF6PV	WG111T 108Mbps USB 2.0 Wireless Adapter	43.39	36.93
2DMHPV	WG602 802.11g Wireless Access Point	51.44	43.78
2VCDPV	54Mbps Wireless ADSL Modem	69.33	59.00
<b>US ROBOTICS</b>			
2WDHPV	100Mbps Wireless Turbo PC Card	32.91	28.01
2SLTPV	100Mbps Wireless Turbo PCI Adapter	32.11	27.33
22YYPV	56K External Faxmodem USB	48.15	40.98

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quicklinx	LOGITECH	£ inc VAT	£ ex VAT
2480PV	Deluxe Access Keyboard	12.60	10.73
39N4PV	Media Keyboard	15.27	13.00
3FXVPV	Cordless Desktop Express	26.51	22.57
3KMRPV	Cordless Desktop LX 300	38.48	32.75
3FHRPV	Cordless Desktop LX 501	43.47	37.00
39Z4PV	Cordless Desktop LX 500	46.56	39.63
248LPV	Cordless Desktop Comfort	52.33	44.54
3H7VPV	Cordless Desktop LX 700	59.11	50.31
2683PV	Cordless Desktop MX	73.41	62.48
3J1JPV	diNovo Cordless Desktop for Notebooks	74.26	63.20
3JQDPV	diNovo Media Desktop 2.0	143.99	122.55
<b>MICROSOFT</b>			
32N8PV	Internet Keyboard White	11.47	9.77
3K8SPV	Internet Keyboard Black	11.47	9.77
39JFPV	Digital Media Pro Keyboard	21.53	18.33
2PKVPV	Natural MultiMedia Keyboard	27.16	23.12
2PKGPV	Basic Wireless Optical Desktop	36.58	31.14
3PKFPV	Wireless Optical Desktop Pro	48.79	41.53
37XVPV	Wireless Optical Desktop 3.0	47.44	40.38
2DNHPV	Wireless Optical Desktop Executive Edition	57.57	49.00
3FKHPV	Wireless Optical Desktop + Fingerprint Read	58.57	49.85
2PKDPV	Wireless Optical Desktop Elite	58.57	49.85
3FKJPV	Optical Desktop Elite for Bluetooth	92.20	78.47
<b>BELKIN</b>			
2V5KPV	Classic Keyboard	10.28	8.75
2V5JVP	Classic Keyboard, Black; USB Only	13.35	11.37
2V70PV	MediaBoard Pro W/2 USB	27.27	23.21

## MICE

quicklinx	LOGITECH	£ inc VAT	£ ex VAT
3FXJPV	Click Optical	14.68	12.50
2D4CPV	MX310 Optical Mouse	21.15	18.00
3FXNPV	Cordless Click Optical	22.87	19.47
39NCPV	Cordless Click+ Optical	27.68	23.56
33M6PV	MX510 Performance Optical	29.37	25.00
27RMPV	MX700 Cordless Optical	39.87	33.94
3FPDPV	MX1000 Laser Cordless Mouse	43.47	37.00
2T84PV	MX900 Optical Mouse Bluetooth	55.37	47.13
<b>MICROSOFT</b>			
37XSPV	Optical Mouse by S+ARCK Blue	24.08	20.50
3F2SPV	Standard Wireless Optical Mouse Black	16.50	14.05
37XTPV	Optical Mouse by S+ARCK Orange	24.05	20.50
3F2RPV	Standard Wireless Optical Mouse White	16.50	14.05
396TPV	Wireless Optical Mouse Groovy	22.36	19.03
396VPV	Wireless Optical Mouse Mood Ring	22.34	19.02
2DNDPV	Wireless IntelliMouse Explorer Platinum	25.63	21.82
2PK6PV	Wireless IntelliMouse Explorer Metallic Grey	25.63	21.82
3FKFPV	Wireless IntelliMouse Explorer Bluetooth	50.83	43.26
<b>BELKIN</b>			
2DH1PV	3 Button Mouse PS2 in Black	4.11	3.50
2V6DPV	3 Button with Scroll Mouse	7.34	6.25

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## INKJET PRINTERS

quiklinx	CANON	£ inc VAT	£ ex VAT
3F16PV	PIXMA iP1500	55.02	46.83
3F17PV	PIXMA iP2000	57.57	49.00
3F18PV	PIXMA iP3000	72.85	62.00
3F1BPV	PIXMA iP4000	92.82	79.00
3GW4PV	PIXMA iP5000	132.77	113.00
3GW6PV	PIXMA iP6000	129.25	110.00
3GW5PV	PIXMA iP4000R	141.00	120.00
3GW7PV	PIXMA iP8500	280.00	238.30
<b>EPSON</b>			
376ZPV	Stylus C46UX	35.25	30.00
3770PV	Stylus C66	45.82	39.00
393PPV	Stylus C86 Photo Edition	68.15	58.00
2TDXPV	Stylus Photo R300	84.60	72.00
300KPV	Stylus Photo R800	205.62	175.00
<b>HP</b>			
37MXPV	Photosmart 7450	71.01	60.43
36KWPV	Photosmart 7760	85.99	73.18
3GGFPV	Photosmart 8150 Printer	130.12	110.74
37MVPV	Photosmart 375	167.83	142.83

## LASER PRINTERS

quiklinx	BROTHER	£ inc VAT	£ ex VAT
3L1ZPV	HL-2030B	58.74	49.99
308TPV	HL-5130	142.98	121.69
<b>EPSON</b>			
2SRVPV	EPL-6200	188.81	160.69
2SRZPV	EPL-6200L	111.62	95.00
<b>KYOCERA</b>			
3MKCPV	FS-720	134.46	114.44
3MKDPV	FS-820	153.91	130.99
<b>OKI</b>			
3605PV	B4100	116.32	99.00
360DPV	B4250	151.57	129.00
<b>KONICA MINOLTA</b>			
2WX8PV	Pagepro 1300W	89.95	76.56
<b>SAMSUNG</b>			
3GV5PV	ML-1520 Mono Laser	104.57	89.00
30H0PV	ML-2550 Mono Laser	359.98	306.37
3JCBPV	CLP-550 Colour Laser Printer	474.99	404.25

## SCANNERS

quiklinx	CANON	£ inc VAT	£ ex VAT
2483PV	Lide 20	39.99	34.04
38HXPV	Lide 35	47.00	40.00
3H45PV	4200F	96.33	81.99
36THPV	5200F	116.32	99.00
3H44PV	8400F	166.45	141.66
3H9WVP	9950F	316.99	269.78
<b>EPSON</b>			
38NGPV	Perfection 2480 Photo	74.13	63.09
3958PV	Perfection 2580	88.12	75.00
209GPV	Perfection 3170 Photo	136.08	115.82
3K75PV	Perfection 4180 Photo	186.71	158.91
3K2PPV	Perfection 4990 Photo	316.99	269.78
<b>HP</b>			
2HY3PV	ScanJet 2400 1200dpi	41.77	35.55
3813PV	ScanJet 3770	55.85	47.53
360CPV	ScanJet 4070	95.05	80.89
2PTFPV	ScanJet 4600	99.96	85.07
2PTGPV	ScanJet 4670	122.66	104.39
3JXDPV	ScanJet 4670vp	123.08	104.75
2R84PV	ScanJet 5530C	184.43	156.96
340LPV	ScanJet 5590	269.99	229.78
2MG6PV	ScanJet 8200	382.99	325.95
VYPPV	ScanJet 7450C 2400dpi 48-bit	425.98	362.54
2MGCPV	ScanJet 8250	637.99	542.97
2MGGPV	ScanJet 8290	1269.99	1080.84

## MULTIFUNCTIONS

quiklinx	CANON	£ inc VAT	£ ex VAT
3H9TPV	PIXMA MP110	92.98	79.14
3H9VPV	PIXMA MP130	111.07	94.53
3H9SPV	PIXMA MP750	198.99	169.36
3HBQPV	PIXMA MP780	225.01	191.50
<b>EPSON</b>			
3DWXPV	Stylus CX3600	70.99	60.42
17XJPV	Stylus CX6600	131.60	112.00
3DWYPV	Stylus Photo RX-420	82.63	70.33
3L64PV	Stylus Photo RX-620	172.00	146.39
<b>HP</b>			
35FKPV	PSC 1215	61.97	52.74
35FMPV	PSC 1315	89.49	76.16
340QPV	OfficeJet 4215	111.61	94.99
2R7YPV	PSC 1350	116.99	99.57
34QRPV	OfficeJet 4255	126.22	107.42
2VZVPV	OfficeJet 5510	135.57	115.38
39BSPV	PSC 2355	136.88	116.49
2C6MPV	OfficeJet 6110	150.87	128.40
2R80PV	PSC 2410	180.74	153.82
2D88PV	OfficeJet 7110	225.68	192.07
3G13PV	Photosmart 2610	244.52	208.10
3GG5PV	Photosmart 2710	273.49	232.76
3HH2PV	OfficeJet 7310	310.19	263.99
3HGWPV	OfficeJet 7410	402.59	342.63

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The Lexmark X7170 Office Productivity All-In-One is the versatile solution for printing, managing and organising your office documents. It delivers professional level quality and productivity that you can count on.

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- USB Compatible with USB 2.0 Specification
- Optional 6 Colour Photo Printing

- Up to 2400 x 1200 dp • USB 2.0 interface
- Print Speed (max) Colour up to 15ppm / Mono up to 22ppm

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**PORTABLE**

### quiklinx 37MLPV

The HP Photosmart 325 Compact Photo Printer is designed for families who want a quick and convenient way of previewing, selecting and printing high quality 10 x 15 cm photos there and then at home, at parties, sports days and other family events.

Print directly from your memory card, PictBridge-enabled camera or Bluetooth camera phone. Built-in LCD allows easy selection. Choose the optional battery, carry case and in-car adapter for maximum mobility.

- Print borderless upto 4800dpi • Print in as little as 60 secs
- Built in memory card readers • 3.8cm colour LCD

only **£119.<sup>99</sup>** ( £102.12 ex VAT )

## PHOTOSMART 8450 PHOTO PRINTER



**8 INK**

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Make an impression every time you print with HP's studio-quality 8-ink colour or up to 4800-optimized dpi colour printing. Enjoy HP's extended colour palette to print colour and black and white photos with high contrast and superior image detail.

Make every photo look its best before you print with easy editing features. Using the large 2.5" image display and easy front panel editing buttons, select the photos you want, then rotate, crop, zoom, automatically remove red-eye and print.

- 8-ink for professional colour

- Compatible with Microsoft Windows 98, 2000 Professional, Me, XP Home & Professional, Mac OS X v 10.1.5 or greater

only **£175.<sup>14</sup>** ( £143.05 ex VAT )

## STYLUS PHOTO RX420

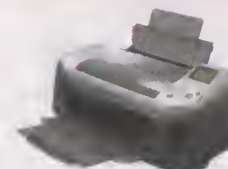
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**NEW**

### quiklinx 3DWYPV

If you like the sound of great photos for at a low price, then take a look at the Epson Stylus Photo RX420. It can produce superb photos in your own home! And can cost less than your local photo lab. It couldn't be easier.



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With up to 5760 x 1440 dpi and superior 6-colour Photo Inks, the Epson Stylus Photo R300 produces precise colour and accurate skin tones. Plus, BorderFree printing in popular photo sizes provides a fast, simple way to get bright, vivid prints to frame, place in an album, or share with your friends.

**EPSON**

**EPSON**

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only **£84.<sup>60</sup>** ( £72.00 ex VAT )

## PIXMA MP110

## PIXMA IP4000



**NEW**

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Stylish, compact and offering outstanding value for money, the Canon PIXMA MP110 prints, scans and copies. Get great All-In-One versatility at your fingertips with this affordable multifunctional.

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only **£89.<sup>99</sup>** ( £76.59 ex VAT )



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**SONY**

Cyber-shot  
Carl Zeiss  
Vario-Tessar  
3x ZOOM  
7.2 MEGA PIXELS

**quicklinx 3L5JVPV**

Slim, stylish and robust. The 7.2 effective Megapixel compact P200 is best for the pocket, image quality and Stamina.

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- Quick Operation (Start-up 1.3 sec, Shutter Time Lag 0.3 sec, •Shutter Release Lag 0.01 sec)
- Real Imaging Processor

•7.2 Megapixels •Carl Zeiss® Vario-Tessar® lens •3x Optical Zoom, up to 14x Smart Zoom, 6x Precision Digital Zoom

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## POWERSHOT A520 DIGITAL CAMERA



you can  
**CANON**

**NEW**

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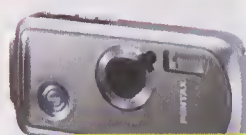
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31M9PV	Ixus IIs	172.72	47.00
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3GKMPV	Ixus i5 - Blue	229.99	195.74
3GKDPV	Ixus i5 - Garnet	229.99	195.74
3GKRVP	Ixus i5 - Grey	229.99	195.74
3F4SPV	Powershot A95	233.22	198.49
3GKHVP	Ixus 40	228.99	194.89
31MDPV	Ixus 500	249.99	212.76
3F4VPV	Powershot S70	378.99	322.55
3F4TPV	Powershot G6	458.93	390.58
2DJWVP	EOS 300D - Body & Lens Kit	627.99	534.46
2QJVPV	EOS 300D - Body Only	638.98	543.82
<b>HP</b>			
2PTJPV	Photosmart 945	197.29	167.91
32XSPV	Photosmart R707	172.30	146.64
3574PV	Photosmart R707 with Dock	205.38	174.79
37W6PV	Photosmart M307	91.74	78.08
37WXPV	Photosmart R507 with Dock	177.66	151.20
37WYVP	Photosmart R507	146.78	124.92
3F8HPV	HP Photosmart M407	132.31	112.60
3F9FPV	HP Photosmart M407#U with Dock	169.71	144.43
3HVZPV	Photosmart 375/R507 Camera	366.99	312.33
<b>OLYMPUS</b>			
34RBPV	C-160	93.72	79.77
3GY6PV	C-370	95.98	81.69
31VKPV	C-310Z	104.92	89.30
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31R2PV	Mju 410	182.70	155.49
34R8PV	C-765UZ	219.63	186.92
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3KHFPV	Mju 500	225.00	191.49
31VHPV	C-770UZ	298.56	254.10
3GY3PV	C-70	339.98	289.35
34CHPV	C-8080WZ	575.91	490.14
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37VKPV	Dptio 43WR	267.99	228.08
3FJDPV	Dptio X	294.99	251.06
3FJ9PV	Dptio SV	304.99	259.57
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3FJCPV	Dptio 750Z	359.99	306.38
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3N2PPV	DSC-S80 Cyber-shot 4.1MP	171.86	146.27
3NLLPV	DSC-PS90 Cyber-shot 4.1 MP	197.32	167.94
3MF0PV	DSC-W55 Cyber-shot 5.1 MP	250.26	212.99
3MF1PV	DSC-W15 Cyber-shot 5.1 MP	267.88	227.99
3MF2PV	DSC-W75 Cyber-shot 7.2 MP	289.99	246.80
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3L8FPV	DSC-T33 Cyber-shot 5.1 MP	289.99	246.80
3FPNPV	DSC-V3 Cyber-shot 7.2MP	435.99	371.06
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## DIGITAL CAMCORDER

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34J5PV	MXV200	399.98	340.41
2HKHPV	MV6iMC	486.27	413.85
34J6PV	MXV250i	493.48	419.99
3F7KPV	MXV25i	649.98	553.18
3F7LPV	MXV30i	729.98	621.26
3F7MPV	MXV35i	742.47	631.89
2QDNVP	MXV10	749.97	638.28
2QDLVP	MXV3i	839.98	714.88
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3L6SPV	DCR-TRV270E Handycam Digital 8	239.68	203.99
3L6VPV	DCR-TRV285E Handycam Digital 8	267.99	228.08
3L6XPV	DCR-HC19E Handycam Mini DV	283.98	241.69
3L6WPV	DCR-TRV480E Handycam Digital 8	380.70	324.00
3L6ZPV	DCR-HC22E Handycam Mini DV	341.91	290.99
3L70PV	DCR-HC32E Handycam Mini DV	344.26	292.99
3L76PV	DCR-HC39E Handycam Mini DV	399.99	340.42
3L7RPV	DCR-HC42E Handycam Mini DV	489.96	416.99
3L7TPV	DCR-PC53E Handycam Mini DV	446.99	380.42
3L7WVP	DCR-PC55E Handycam Mini DV	487.98	415.31
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386RPV	DCR-HC1000E Megapixel Handycam	997.98	849.35
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37CFPV	Radeon 9550 128MB AGP DVI-I VD	39.60	33.70
39TVPV	Radeon X800XT 256MB PCI-E DVI-I VIVO	381.08	324.32
3CLNPV	GeForce 6800 256MB PCI-E DVI VD	203.26	172.99
39TQPV	GeForce 6800 128MB AGP DVI-I VD	200.96	171.03
3LCPPV	GeForce 6800GT 256MB PCI-E	262.99	223.82
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3KJSPV	Radeon 9250SE 128MB AGP DVI VD	32.55	27.70
2LJMPV	Radeon 9600 128MB AGP DVI-I VD	46.38	39.47
2VDRPV	Radeon 9600XT 128MB AGP DVI-I VD	83.57	71.12
31GSPV	Radeon 9600XT 256MB AGP DVI-I VD	99.98	85.09
2RWVPV	Radeon 9800 Pro A-in-W 128MB AGP DVI-I	194.98	165.94
3KJXPV	Radeon X700Pro 128MB PCI-E DVI-I VD	98.12	83.51
359BPV	Radeon X800 Pro 256MB AGP GDDR3 DVI-I	274.96	234.01
36SNPV	Radeon X800XT Platinum 256MB AGP DVI-I	319.96	272.31
3LVTVP	Radeon X850XT 256MB PCI-E DVI-I VIVO	287.99	245.10
3MXLPV	Radeon X850XT PE 256MB AGP DVI-I VIVO	316.99	269.78
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3MG1PV	GeForce 6200TC 32MB TurboCache PCI-E DVI-I37.72	32.10	
3K56PV	GeForce 6600GT 128MB AGP DVI-I VIVO	133.94	113.99
3723PV	GeForce 6800 128MB AGP DVI-I VD	159.37	135.63
37T9PV	GeForce 6800GT 256MB AGP 2xDVI-I VD	287.88	245.00
3MFVPV	GeForce 6800GT 256MB PCI-E DVI-I	236.12	200.95
37T6PV	GeForce PCX5750 128MB PCI-E DVI-I VD	51.77	44.06
37T5PV	GeForce PCX5900 128MB PCI-E DVI-I VIVO	91.89	78.20
37TKPV	Radeon X600Pro 128MB PCI-E DVI-I VD	45.20	38.47
3MFRPV	Radeon X700 128MB PCI-E DVI-I	84.64	72.03
3MFQPV	Radeon X800 128MB PCI-E DVI-I	138.03	117.47
3MFPPV	Radeon X800 256MB PCI-E DVI-I	156.51	133.20
37THPV	Radeon X800Pro 256MB AGP DVI-I VD	244.28	207.90
3MFNPV	Radeon X800XL 256MB PCI-E DVI-I VIVO	215.91	183.75
3MFMPV	Radeon X850XTP 256MB PCI-E VIVO	331.98	282.54
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3H2SPV	Radeon 9250 128MB AGP DVI-I VIVO	36.39	30.97
3H27PV	Radeon 9250 256MB AGP DVI-I VD	40.67	34.61
36JCPV	Radeon 9550 128MB AGP DVI-I VD	41.51	35.33
36JDPV	Radeon 9550 256MB AGP DVI-I VD	49.50	42.13
2WJ2PV	Radeon 9600XT 128MB AGP DVI-I VD	80.98	68.92
2WJ3PV	Radeon 9600XT 256MB AGP DVI-I VD	91.47	77.85
3H28PV	Radeon X700 Pro 256MB PCI-E DVI-I VIVO	129.54	110.25
3L3DPV	Radeon X700Pro Fireblade 128MB PCI-E DVI-I109.53	93.22	
3M6MPV	Radeon X800 256MB PCI-E DVI-I	165.01	140.43
3MX8PV	Radeon X800XL 256MB DVI-I VD	233.00	198.30
3M99PV	Radeon X800XT 256MB AGP VIVO	319.86	272.22
3M7VPV	Radeon X850Pro 256MB PCI-E DVI-I VIVO	269.00	228.94
3MP3PV	Radeon X850XT 256MB PCI-E DVI-I VD	286.00	243.40
3MXCPV	Radeon X850XT Platinum 256MB AGP DVI-I VIVO339.00	288.51	
<b>DABSVLUE</b>			
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3H2SPV	Radeon 9250 128MB AGP DVI-I VIVO	36.39	30.97
3M6KPV	Radeon 9250 128MB PCI DVI-I VD	30.81	26.22
36JDPV	Radeon 9550 256MB AGP DVI-I VD	49.50	42.13
3L37PV	Radeon 9800SE Advantage 128MB AGP DVI-I VD78.73	67.00	
3L38PV	Radeon X300SE 128MB PCI-E DVI-I VD	36.94	31.44
3L3CPV	Radeon X700Pro Toxic 128MB PCI-E DVI-I VIVO129.98	110.62	
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3J7DPV	Cavalier 1 Case Silver No PSU	64.26	54.69
3J7FPV	Cavalier 1 Case Black No PSU	63.02	53.63
39HXPV	Cavalier 3 Case Black No PSU	69.27	58.95
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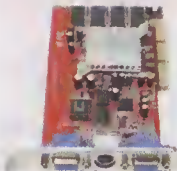
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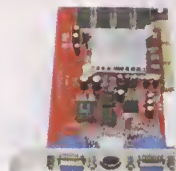
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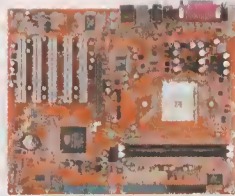
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ASUS

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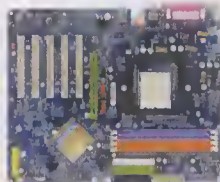
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36M3PV	Intel 915P Socket 775 ATX Audio/LAN/RAID	90.01	76.60
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3GNDPV	Socket 754 nForce 3 ATX Audio LAN RAID	44.80	38.13
39P2PV	Intel 865PE Socket775 ATX Audio/LAN	58.62	49.89
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37Z2PV	nForce3 Socket 754 ATX Audio/LAN/RAID	61.43	52.28
35B4PV	S754 VIA K8T800 AGP DDR ATX A LAN RAID	74.97	63.80
37ZXPV	Intel 915P So775 PCI-E ATX A/LAN/RAID	78.14	66.50
37CCPV	VIA K8T800PR So939 ATX WiFi A/LAN/RAID	74.37	63.29
39PYVP	Intel 915P So775 PCI-E ATX A/LAN/RAID	91.65	78.00
37ZWPV	Intel 915P So775 PCI-E ATX A/LAN/RAID	93.53	79.60
37ZVPV	Intel 915G So775 PCIE ATX A/V/LAN/RAID	93.11	79.24
3KGXPV	nForce 4 SLI Socket 939 PCI-E ATX	93.87	79.89
37ZTPV	Intel 915P So775 PCI-E ATX A/LAN/RAID	107.35	91.36
3KGWVP	nForce 4 SLI Socket 939 PCI-E ATX	108.04	91.95
37ZSPV	Intel 915P So775 PCI-E ATX A/LAN/RAID	128.66	109.50

quicklink	GIGABYTE	€ inc VAT	€ ex VAT
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3KZDPV	GA-85648FX-755 So775 SIS 648FX AGP	38.48	32.75
3KR2PV	GA-7NA00SL SoA nForce 2 Ultra AGP 8x ATX	35.33	30.07
37G6PV	nForce 250 Socket 754 ATX Audio/LAN/RAID	44.52	37.89
37GJVP	VIA K8M800M So754 MATX Audio/LAN/RAID	42.17	35.89
3KR3PV	GA-K8NS-939 So939 nForce 3 Ultra AGP	50.24	42.76
3K41PV	GA-8I865GMF-775 So775 Intel 865G MATX	53.87	45.85
37GFPV	nForce3 Socket754 ATX Audio/LAN/RAID	62.47	53.17
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3KSZPV	GA-K8NF-9 So939 nForce 4-4X PCI-E ATX	67.55	57.49
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3KT0PV	GA-K8NXP-9 So939 nForce 4 Ultra PCI-E	111.61	94.99
3HRZPV	GA-K8NS Ultra 939 So939 nF 3 250Ultra ATX	79.10	67.32
3KLYPV	GA-K8NXP-SLI So939 nForce 4 Ultra PCI-E	124.84	106.25
3KR1PV	GA-8AENXP-D S775 Intel 925XE PCI-E	151.82	129.21

quicklink	MSI	€ inc VAT	€ ex VAT
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3JM8PV	K7N2 Delta2-LSR SoA nForce 2 Ultra ATX	36.01	30.65
3JM2PV	PT880 Neo-FSR Socket 478 VIA PT880 ATX	43.40	36.94
3GVXPV	Socket A nForce2 Ultra ATX AGP Audio RAID	51.70	44.00
3JM6PV	K8M Neo-V Socket 754 VIA K8M800 ATX	48.00	40.85
3KR5PV	915GM-FR S775 Intel 915G PCI-E MATX	63.43	53.98
39DDPV	nForce3 U Socket939 ATX Audio/LAN/RAID	88.05	74.94
3LX5PV	K8N Neo3-FSR Socket 754 nForce 4 ATX	58.00	47.66
3H9GPV	915G Neo2 Platinum S775 Intel 915G ATX G	95.05	80.89
3KR7PV	K8N Diamond S939 nForce 4 SLI PCI-E ATX	137.32	116.87
39DGPV	Intel 925X S775 PCI-E ATX Audio/LAN/RAID	130.43	111.00

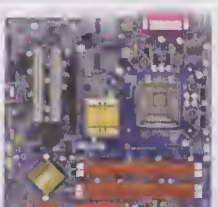
## only £53.90 (€45.88 ex VAT) S939 nFORCE 3 ULTRA MOTHERBOARD



GIGABYTE TECHNOLOGY

**quicklink** 3KR3PV

Supporting the latest AMD socket 939 Athlon64FX/ 64 processors, the K8NS-939 represent the most cost effective solution for AMD platform. Accompanied with the innovative designs of AMD64 technology, the advanced NVIDIA nForce3 processor contributes to functionality and stability of this platform.



GIGABYTE TECHNOLOGY

**quicklink** 3K40PV

Designed with a pack of features and dedicated to satisfying the needs of cost-effective platforms, the GA-8I915D MFD lets you experience next-generation processing with the latest LGA 775 Intel®P4 Processor with Hyper-Threading Technology! Supports DDR2 533/400 to satisfy the needs of a wide range of systems.

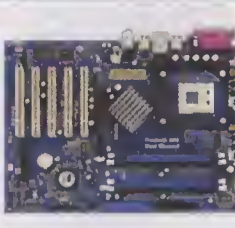
## only £79.10 (€67.32 ex VAT) S939 nFORCE 4 MOTHERBOARD



MSI

**quicklink** 3KR7PV

The MSI K8N Diamond not only supports Nvidia's outstanding SLI technology for extreme 3D performance, but is also the first one to integrate the most advanced controllers for outstanding connectivity, storage and high-definition audio.



ASRock

**quicklink** 3HRTPV

The P4V88 supports FSB800MHz processor, Prescott Ready and H-T Technology, as well as DDR400 and Dual Channel Technology. Features ASRock safe overclocking, SerialATA 1.5Gb/s, RAID 0, 1, JBOD, SATA HDD Hotplug, AGP8x, 5.1Ch Audio, 10/100 Ethernet LAN, ASRock I/O & 6 ready to use USB2 ports.

## only £137.32 (€116.87 ex VAT) ATHLON 64 3200+ PROCESSOR 2.2GHZ



AMD



LOWER PRICE

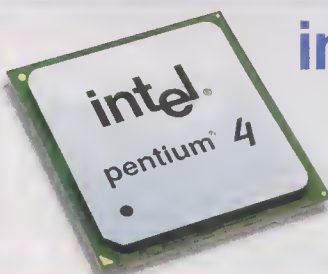
**quicklink** 36T2PV

You live at the forefront of technology & you won't settle for less from your favourite software. That's why AMD is proud to bring you the AMD Athlon 64™ processor, with AMD 64-bit technology for dramatically higher performance & built-in support for 64-bit applications - only AMD64 - bit technology can run today's 32-bit & complete with 64-bit Windows™ at the same time. Maximize system efficiency & stay ahead of the curve with the technically superior PC processor, packed with advances such as HyperTransport technology & an integrated DDR memory controller. Whether for business, school or play, with the AMD Athlon 64™ processor, you can address your current and future computing needs.

•AMD Athlon 64 3200+ 2.5GHz •Socket 754 •HyperTransport technology •Integrated memory controller

only £122.50 (€104.26 ex VAT)

## PENTIUM 4 PROCESSOR 3.2GHZ



intel

**quicklink** 3146PV

Based on Intel NetBurst microarchitecture, the Pentium 4 processor delivers significant performance gains for use in personal computing, business solutions and all your processing needs.

The Intel Pentium 4 processor for business desktop PCs delivers the enhanced productivity, performance and stability demanded by today's business workers and IT managers. Whether it's Web services, security or Microsoft Windows XP, high-performance Pentium 4 processors can enrich the business solutions and applications you're deploying today or tomorrow.

•3.2 GHz •800MHz Bus Speed •Socket 478 •Streaming SIMD extensions 2 •Hyper-Threading Technology

only £138.00 (€117.45 ex VAT)

## PROCESSORS

quicklink	AMD	€ inc VAT	€ ex VAT
3KBSPV	Sempron 2300+ SoA 1.583GHz 256Kb Inc Fan	39.05	33.23
396FPV	Sempron 2400+ Box 1.670GHz SoA 256Kb	43.56	37.07
396DPV	Sempron 2500+ Box 1.758GHz SocketA 256Kb	43.19	36.76
396CPV	Sempron 2600+ Box 1.830GHz SoA 256Kb	50.83	43.26
396BPV	Sempron 2800+ Box 2.00GHz SoA 256Kb	56.93	48.45
3KVHPV	Sempron 2800+ Box 2.00GHz SoA	56.93	48.45
3M6GPV	Sempron 3000+ S754 256Kb Box	62.28	53.00
3968PV	Sempron 3100+ Box 1.80GHz S754	71.97	61.25
34VVPV	Dipteron 148 2.2GHz 1MB S940 Box	208.54	177.48
3FKCPV	Dipteron 150 2.4GHz S940 1MB Box	288.46	245.50
3FKDPV	Dipteron 250 2.4GHz S940 1MB Box	477.64	406.50
3L17PV	Athlon 64 3200+ 2.00GHz So939 512Kb No Fan	123.43	105.05
3J31PV	Athlon 64 3000+ Socket 939 512Kb Inc Fan	95.16	80.99
3J33PV	Athlon 64 3200+ Socket 939 512Kb Inc Fan	123.38	105.00
3J34PV	Athlon 64 3500+ Socket 939 512Kb Inc Fan	178.18	151.64
3J38PV	Athlon 64 4000+ Socket 939 1MB Inc Fan	315.01	268.09
3J39PV	Athlon 64 FX-55 Socket 939 1MB Inc Fan	539.99	459.57
quicklink	INTEL	€ inc VAT	€ ex VAT
3GVBPV	Celeron D 320 256Kb S478 533	45.32	38.57
36LKPV	Celeron D 330 256Kb S478 533FSB Box	52.98	45.09
36SVPV	Celeron D 335 256Kb S478 533FSB Box	58.39	49.69
3KDDPV	Celeron 345J S775 256Kb	82.26	70.01
3HX0PV	Pentium 4 520J So775 1MB 800FSB Inc Fan	103.21	87.84
3HX1PV	Pentium 4 530J So775 1MB 800FSB Inc Fan	114.09	97.10
3HX2PV	Pentium 4 540J So775 1MB 800FSB Inc Fan	142.00	120.85
3HX3PV	Pentium 4 550J So775 1MB 800FSB Inc Fan	173.95	148.04
3HX4PV	Pentium 4 560J So775 1MB 800FSB Inc Fan	263.62	224.36
3HX5PV	Pentium 4 570J So775 1MB 800FSB Inc Fan	410.99	349.78
3HX6PV	Pentium 4 3.40GHz EE So775 2MB 800FSB	660.75	562.34
3KHMPV	Pentium 4 EE 3.46GHz So775 2MB cache	678.23	577.22
3HXNPP	Xeon 3.2GHz So604 1MB 800FSB Passve H/S	221.69	188.67
3HXPPV	Xeon 3.40GHz So604 1MB 800FSB Inc 1U H/S	292.99	249.35
3HXPV	Xeon 3.60GHz So604 1MB 800FSB Inc 1U H/S	477.09	406.03

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## OPTICAL DRIVES

quicklink	ASUS	£ inc VAT	£ ex VAT
36NWPV	CD-RDM 52x IDE	9.51	8.09
36NYPV	DVD-RDM 16x IDE	15.62	13.29
36NRPV	CD-RW 52x 52w 32rw IDE Black	17.03	14.49
351RPV	CD-RW 52x 52w 32rw Ext USB2	31.73	27.00
3MHPV	DVD+-R/RW 16x IDE Drive Only	33.72	28.70
3MH9PV	DVD+-R/RW 16x IDE	46.94	39.95
<b>BENQ</b>			
39NFPV	CD-RDM 56x Retail Kit	10.60	9.02
3H17PV	CD-RW 52x 52w 32rw IDE Beige RP	14.53	12.37
3JTHPV	DVD-RW 16x Dual Layer IDE Beige	37.42	31.85
<b>FREECOM</b>			
3P8VPV	Classic CDRW 52x24x52x	56.61	48.18
3FMTVP	DVD+-R/RW 16x Double Layer IDE	55.65	47.36
3FMXPV	DVD+-R/RW 16x Double Layer IDE Black	56.71	48.26
3FMYPV	Classic DVD+-R/RW 16x Double Layer USB2	70.43	59.94
3FN0PV	FX-50 DVD+-R/RW 16x D/Layer USB2 & FW	113.78	96.83
3KF8PV	FS-50 DVD+-R/RW 8x USB2	164.49	139.99
<b>IOmega</b>			
3471PV	Combo USB2 16xDVD 52x 52w 24rw	54.88	46.71
3JHJPV	DVD+-R/RW 16x Dual Layer USB2 Beige	66.25	56.38
<b>LITEON</b>			
3407PV	52x Internal IDE Retail	12.18	10.37
39VMPV	CD-RW Int IDE 52x 52w 32rw RP	14.89	12.67
3K00PV	DVD16x 52x52x32x IDE Beige RP	25.79	21.95
3M25PV	DVD+-R/RW 16x16x IDE Beige	36.46	31.03
3M27PV	DVD+-R/RW 16x16x Dual Layer IDE	34.33	29.22
3M28PV	DVD+-R/RW 16x16x IDE Dual Layer Black	35.03	29.81
3M2CPV	DVD+-R/RW 16x Dual Layer USB2 Black	52.98	45.09
<b>LG</b>			
352DPV	CD-RW 52x 52w 32rw IDE DEM	16.07	13.68
35YRPV	16xDVD 52x 52w 32rw Int IDE RP	24.95	21.23
3L90PV	DVD+-R/RW 16x Dual Layer DEM	33.99	28.93
3LYGPV	DVD+-R/RW 16x Dual Layer IDE RP	40.19	34.20
3LYHPV	DVD+-R/RW 16x DL Black DEM	36.41	30.99
<b>NEC</b>			
3KNCVP	DVD+-R/RW 16x Dual Layer Beige DEM	33.48	28.49
	DVD+-R/RW 16x Dual Layer IDE Black DEM	33.48	28.49
3M8DPV	DVD+-R/RW 16x Dual Layer Silver DEM	34.96	29.75
3LV7PV	DVD+-R/RW 16x Dual Layer Beige	44.34	37.74
<b>PLEXTOR</b>			
2LSRPV	CD-RW 52x 52w 32rw Int IDE RP	52.39	44.59
2WKFVP	CD-RW 52x 52w 24rw Int IDE RP	24.50	20.85
2VP0PV	16xDVD 48xCD Int IDE Retail	23.10	19.66
37JQPV	DVD+-R/RW 12x SATA	65.71	55.92
3GZQPV	DVD+-R/RW 16x16x IDE Beige Drive Only	75.28	64.07
3GZPPV	DVD+-R/RW 16x16x IDE Beige + Black Bezel	74.93	63.77
3L25PV	DVD+-R/RW 16x16x USB2/Firewire External	143.48	122.11
<b>PIONEER</b>			
3LMFPV	DVD+-R/RW 16x IDE Dual Layer IDE Drive Only36.19	30.80	
3LSBPV	DVD+-R/RW 16x IDE Dual Layer Black Drive Only39.63	33.73	
<b>SAMSUNG</b>			
3MTQPV	CD-RW 52x52x32rw Black DEM	13.57	11.55
3H33PV	DVD16x CD48x IDE Beige Retail	16.05	13.66
3L32PV	DVD+-R/RW 16x16x Black DEM	36.41	30.99
3L31PV	DVD+-R/RW 16x16x Beige DEM	38.19	32.50
3K5FPV	DVD+-R/RW DL 16x USB2 RP Black	67.52	57.46
<b>SONY</b>			
33RJPV	CD-RW 52x32x52 Silver DEM	15.49	13.19
2T3DPV	CD-RW 52x32x52x Int IDE DEM	15.49	13.19
2W4RPV	CD-RW 52x32x52x Int DEM Black	15.99	13.61
33K7PV	CD-RW/DVD 52x32x52x16 DEM	25.99	22.12
33K8PV	CD-RW/DVD 52x32x52x16x DEM Black	26.98	22.97
33S3PV	CD-RW/DVD 52x32x52x16x DEM Silver	26.98	22.97
3MR3PV	DWD23A DVD+-R/RW 16x DL Beige DEM	39.95	34.00
3MR5PV	DWD23A-B DVD+-R/RW 16x DLBlack DEM	39.95	34.00
3MR4PV	DWD23A-S DVD+-R/RW 16x DL Silver DEM	39.95	34.00
3L41PV	DRU-720A DVD+RW Dual Layer Internal	64.98	55.31
3L42PV	DRX-720UL Dual Layer DVD+RW External	136.93	116.54

## MEDIA

quicklink	PHILIPS	£ inc VAT	£ ex VAT
3997PV	4.7GB DVD+RW 4x 5pk	5.90	5.02
398QPV	DVD-R 8x 10 Pack	9.40	8.00
398SPV	CD-R 52x 100 Pack	12.84	10.93
398RPV	DVD-R 8x 50 Pack	15.70	13.36
<b>SONY</b>			
2G2RPV	CD-R 700MB 50 Spindle Pack	10.99	9.36
380HPV	DVD-R 4.7GB 25 Spindle Pack	10.57	9.00
380GPV	DVD-R 4.7GB 25 Spindle Pack	10.56	8.99
2CM5PV	DVD-R Jewel Case 5 Pack	3.56	3.03
2CM8PV	DVD-RW Jewel Case 5 Pack	4.30	3.66
1Y6JPV	DVD-RW Jewel Case 5 Pack	7.53	6.41
<b>VERBATIM</b>			
3JFPV	DVD-R 4.7GB General 4x 5 Pack	14.45	12.30
3G2VPV	DVD-R 12x Jewel Case 5Pack	6.11	5.20
31GHPV	DVD-R 4.7GB 8x 10 Pack	10.28	8.75
34BVPV	DVD+RW 4.7GB 4x 10 Pack	8.70	7.40
3GTZPV	DVD-R 4.7GB 8x 25pack Spindle	10.01	8.52
3GV0PV	DVD-R 4.7GB 8x 25pack Spindle	10.01	8.52
3JY2PV	DVD-R 16x 4.7GB 25pack Spindle	11.27	9.59
376GPV	DVD-R Dual Layer 8.5GB 2.4x 5pack	27.74	23.61

## FS-50 DVD+-R/RW 8X USB2

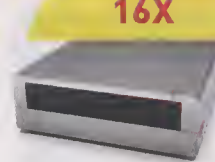


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## quicklink 3KF8PV

The FS-50 is bus powered making it easier to use and works simultaneously with any other USB powered device connected. The extremely fast and beautiful designed DVD+-R/RW Double Layer drive installs in seconds, fits comfortably in smaller spaces and is hot swappable.

## DVD+-R/RW DUAL LAYER USB



LACIE

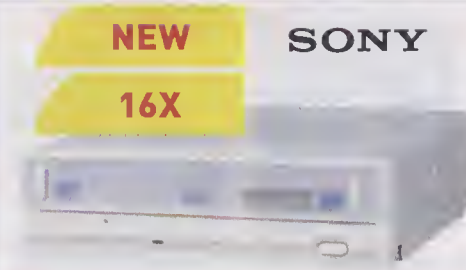
## quicklink 3G6YPV

With new double layer DVD recording technology, the LaCie DVD±RW drive can be used to store nearly twice as much data as before. With up to 8.5GB of space on a single-sided, double layer DVD disc, save up to 16 hours of VHS video, 4 hours of personal, high-quality DVD video or up to 8.5GB of important information.

only **£164.<sup>48</sup>** ( **£139.99** ex VAT )

only **£68.<sup>09</sup>** ( **£57.95** ex VAT )

## DRU-800A DUAL LAYER DVD+RW INTERNAL ATAPI/EIDE



## quicklink 3NY8PV

The Sony DRX-800A Dual Layer DVD+RW Internal Drive has a huge 8.5GB capacity - doubling your recording time or recording quality. The sleek compact design with shorter depth makes for easier installation and air flow improvement, and it even comes with a replaceable black front panel to suite a wider variety of PCs.

- Compatible with most DVD Players
- External Drive (USB 2.0 and iLINK)
- AHEAD nero software suite included for writing, authoring, video/audio editing, backup... and more!
- External drive also available - see quicklink 3L42

- 16x+R/8x+RW/16x-R/6x-RW/4x DL+R and-R
- Includes replaceable front panel (black)

from **£49.<sup>35</sup>** ( **£42.00** ex VAT )

## DVD+-R/RW DUAL LAYER IDE

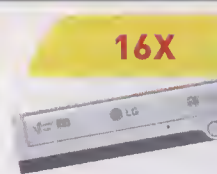
## DVD+-R/RW DUAL LAYER IDE



LITEON

## quicklink 3M27PV

ATAPI/E-IDE Half-Height internal DVD+R / DVD+RW / DVD-R / DVD-RW / DVD+R9 / DVD-ROM / CD-R / CD-RW / CD-ROM combination drive. The SDHW-1673S-02C supports Double Layer DVD+R9 recording function and features SMART-BURN, adjusting writing strategy & running DPC to provide the best quality.



LG

## quicklink 3L90PV

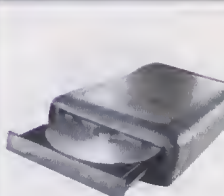
Introducing GSA-4163BA, the latest LG Super Multi Triple format drive. With an incredible 16x max DVD burn speed, and 5X DVD-RAM, you'll never have to worry about compatibility because this drive is compatible with all DVD formats.

only **£33.<sup>19</sup>** ( **£28.25** ex VAT )

only **£33.<sup>94</sup>** ( **£28.89** ex VAT )

## DVD+-R/RW 16X DUAL LAYER USB2

## DVD+-R/RW DUAL LAYER IDE



ioemga

## quicklink 3JHJPV

The 160GB drive is both The Iomega Super DVD Writer 16X Dual Format USB 2.0 external drive is the only drive you need to save and share your videos, photos, music and data. Now, transferring home videos, photos, music and other files from the computer to the living room DVD player becomes virtually effortless.



PLEXTOR

## quicklink 3GZPPV

The PX-716A writes at 16x for DVD+R, 16x for DVD-R and 4x for DVD+R DL (Double Layer). The drive rewrites 8X DVD+RW and 4X DVD-RW. The PX-716A reads CD-RDMs at 48X and DVD-RDMs at 16X. Includes: PX-716A, E-IDE (ATAPI) cable, Plector CD/DVD Utility Software, an extra black front bezel and more!

only **£70.<sup>99</sup>** ( **£60.42** ex VAT )

only **£78.<sup>99</sup>** ( **£67.23** ex VAT )

## DVD+-R/RW DUAL LAYER IDE

## DVD+-R/RW DUAL LAYER IDE - BLACK



**HOT PRICE**  
NEC

## quicklink 3KNCPV

The ND-3500A features motorized tray load mechanism for horizontal and vertical use, dust protected enclosure and emergency eject. Read speed: 16x max. DVD-ROM and 48x max. CD-ROM Write speed: DVD +R: 16x max. DVD-R: 16x max. DVD +RW: 8x max. DVD-RW: 6x max. DVD +R9: 4x DVD-R DL: 4x.



Pioneer

## quicklink 3LSBPV

The industry's first DVD writer to support 16x write speeds on both DVD-R/+R along with the option to write at 4x speed on Double Layer media. The DVR-109 extends Pioneer's track record of establishing key performance benchmarks when introducing new DVD writers.

only **£33.<sup>47</sup>** ( **£28.49** ex VAT )

only **£35.<sup>43</sup>** ( **£30.16** ex VAT )



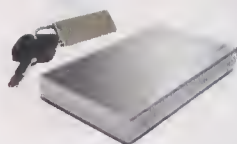
## CLASSIC 160GB USB2



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### quicklinx 33S0VPV

FreeCom now offers the perfect upgrade for your PC: the Classic Hard Drive, a no-nonsense external hard drive. No need to open your PC: just plug the Classic Hard Drive in the USB port (USB 2.0 or 1.1) and you instantly have a substantial increase in storage space. The future is simple!



**LACIE**

## 40GB USB2 MOBILE DRIVE

### quicklinx 25CYPV

Made with durability in mind, these mobile drives were designed to let you work on your projects wherever you happen to be. At only 7.6 x 12.9 x 1.7cm, this bus-powered hard drive is small enough to fit in your shirt pocket and ideal for laptops, personal backup or carrying around your MP3's or photos.

## EXTERNAL HDD

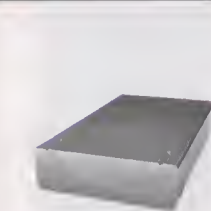
quicklinx	FREECOM	£ inc VAT	£ ex VAT
3M07PV	Classic SL 120GB LAN/USB2	124.42	105.89
3M08PV	Classic SL 160GB LAN/USB2	147.76	125.75
3M09PV	Classic SL 250GB LAN/USB2	195.01	165.97
3M0BPV	Classic SL 400GB LAN/USB2	334.66	284.82
389JPV	FHD-3 160GB USB2 External HDD	107.00	91.06
389LPV	FHD-3 160GB USB2/Firewire	118.32	100.70
389QPV	FHD-3 250GB USB2 External HDD	149.80	127.49
389MPV	FHD-3 250GB USB2/Firewire	166.26	141.50
3JWNPV	FHD-2 PRO 30GB USB2 Special Edition	80.58	68.58
3HDYV	FHD-2 Pro 100GB USB2	191.64	163.10
389NPV	FHD-3 400GB USB2/Firewire	283.84	241.57
3P9MPV	Classic 2.5" 30GB USB2	50.27	42.78
3P9NPV	Classic 2.5" 40GB USB2	55.60	47.32
3P9PPV	Classic 2.5" 60GB USB2	72.07	61.34
3P9QPV	Classic 2.5" 80GB USB2	83.34	70.93

quicklinx	IOMEGA	£ inc VAT	£ ex VAT
30BPBV	Host powered 40GB USB2	59.83	50.92
30PCPV	Oesktop 80GB USB2	75.78	64.49
3364PV	60GB USB2 Portable Hard Drive	84.24	71.69
37D2PV	Desktop 120GB USB2 7200rpm	87.75	74.68
38KTPV	Desktop 250GB USB2 7200rpm	122.27	104.06
3P62PV	REV 35/90GB Ultra 2 SCSI	262.99	223.82

quicklinx	LACIE	£ inc VAT	£ ex VAT
25DJPV	P3 80GB Ext USB2 HDD & Cbl	60.99	51.91
25OLPV	P3 80GB Ext Firewire HDD & Cbl	70.15	59.70
25OKPV	P3 160GB Ext USB2 HDD & Cbl	80.96	68.90
25OMPV	P3 160GB Ext Firewire HDD & Cbl	88.09	74.97
31PLPV	P3 250GB Ext USB2 HDD & Cbl	105.16	89.50
25DNPV	P3 250GB Ext Firewire HDD	119.56	101.75
3JG1PV	200GB Extreme FW 400/800 USB2	127.95	108.89
2ZDMPV	d2 500GB Ext FW 400/800/USB2	267.96	228.05
31PJPV	d2 500GB Extreme Ext FW 400/800	259.79	221.10
31PKPV	d2 1000GB FW 400/800/USB2 HDD	572.95	487.62
3KHSPV	d2 400GB SATA 7200rpm 8MB	326.24	277.65
2GKWPV	500GB Ethernet Disk 10/100 NAS	611.99	520.84
3LC7PV	1000GB Ethernet Disk 10/100 NAS Server	987.76	840.65

quicklinx	MAXTOR	£ inc VAT	£ ex VAT
3K8HPV	One Touch 80GB USB2 7200rpm	69.27	58.95
3K8JPV	One Touch 160GB USB2 7200rpm	91.87	78.19
3446PV	One Touch 160GB 7200rpm USB2/Firewire	108.65	92.47
3K8KPV	One Touch II 200GB USB2/Firewire 7200rpm	120.00	102.13
3H1KPV	One Touch II 250GB USB2/Firewire 7200rpm	138.98	118.28
3H1LPV	One Touch II 300GB USB2/Firewire 7200rpm	153.75	130.85
3K8KPV	One Touch II 200GB USB2/Firewire 7200rpm	120.00	102.13
2VDLPV	One Touch 250GB Firewire 7200rpm - MAC	126.56	107.71
2VDGPV	One Touch 120GB USB2 7200rpm	81.24	69.14
2Z6KPV	GigaVault 80GB Hard Drive USB	236.99	201.69
2Z6LPV	GigaVault 80GB i-Link	242.99	206.80

quicklinx	SONY	£ inc VAT	£ ex VAT
2Z6KPV	GigaVault 80GB Hard Drive USB	236.99	201.69
2Z6LPV	GigaVault 80GB i-Link	242.99	206.80



**LACIE**

### quicklinx 31PLPV

Designed by the world-famous Porsche Design Agency, the LaCie Hard Drives exhibit world-class style and elite performance. With room to store up to 250GB, you can back up your entire system or add extra storage space when your internal hard drive is full.



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### quicklinx 3P9NPV

- Fast, low noise external mobile USB-2 hard drive
- Powered via USB port
- The easiest way to add and manage extra storage capacity to your notebook or computer
- Hot swappable, no need to turn off your computer
- High quality, sleek design, only 128x72x12mm, easy to take with you.

only **£88.24** ( £75.10 ex VAT )

only **£62.63** ( £53.30 ex VAT )

## 250GB P3 HARD DRIVE

## CLASSIC MOBILE HD 2.5" 40GB USB2



**Maxtor**

### quicklinx 3JL2PV

The 7200 RPM DiamondMax Plus 10 hard drive is your solution for performance PCs with data-intensive applications such as network attached storage, home networking devices, audio, video and other multimedia applications.



**Seagate**  
We run on data

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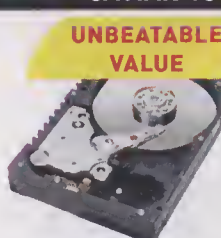
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**iomega**

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2PHDPV	7K250 120GB UDMA100 2MB 7200rpm	47.59	40.50
2PHFPV	7K250 120GB UDMA100 8MB 7200rpm	49.17	41.85
2PHLPV	7K250 120GB SATA150 8MB 7200rpm	51.97	44.23
2PHMPV	7K250 160GB UDMA100 2MB 7200rpm	52.82	44.95
2PHNPV	7K250 160GB UDMA100 8MB 7200rpm	54.32	46.23
2PHPPV	7K250 160GB SATA150 8MB 7200rpm	57.20	48.68
2PHQPV	7K250 250GB UDMA100 8MB 7200rpm	82.24	69.99
2PHRPV	7K250 250GB SATA150 8MB 7200rpm	83.77	71.29

quicklinx	SAMSUNG SPINPOINT P80	£ inc VAT	£ ex VAT
2QD2PV	80GB UDMA133 2MB 7200rpm	37.95	32.30
2ZONPV	80GB SATA150 8MB 7200rpm	43.01	36.60
250TPV	120GB UDMA133 2MB 7200rpm	46.94	39.95
2ZOPPV	120GB UDMA133 8MB 7200rpm	53.00	45.11
2ZQGPV	120GB SATA150 8MB 7200rpm	56.51	48.09
256SPV	160GB UDMA133 2MB 7200rpm	54.98	46.79
2ZDRPV	160GB UDMA133 8MB 7200rpm	58.70	49.96
2ZOTPV	160GB SATA150 8MB 7200rpm	64.98	55.30

quicklinx	SEAGATE BARRACUDA 7200	£ inc VAT	£ ex VAT
2GZ4PV	5400.1 40GB UDMA100	29.66	25.24
2FZQPV	7200.7 80GB UDMA100	35.17	29.93
2FZVPV	7200.7 Plus 120GB UDMA100	49.34	41.99
3K5VPV	7200.8 250GB UDMA100 7200rpm 8MB	81.00	68.94
3K5ZPV	7200.8 300GB UDMA100 7200rpm 8MB	110.39	93.95
3K60PV	7200.8 400GB UDMA100 7200rpm 8MB	186.97	159.12
3K5RPV	7200.7 NCQ 80GB SATA150 7200rpm 8MB	37.37	31.80
3K5SPV	7200.7 NCQ 120GB SATA150 7200rpm 8MB	50.55	43.02
3K5TPV	7200.7 NCQ 160GB SATA150 7200rpm 8MB	60.22	51.25
3K61PV	7200.8 NCQ 250GB SATA150 7200rpm 8MB	88.00	74.89
3K62PV	7200.8 NCQ 300GB SATA150 7200rpm 8MB	116.31	98.99
3K63PV	7200.8 NCQ 400GB SATA150 7200rpm 8MB	194.06	165.16

quicklinx	WESTERN DIGITAL	£ inc VAT	£ ex VAT
18HFPV	Caviar 120GB UDMA100 8MB 7200rpm	49.94	42.50
2N5BPV	Caviar 120GB SATA150 8MB 7200rpm	52.33	44.54
12NMPV	Caviar 160GB UDMA100 2MB 7200rpm	51.94	44.20
2J7ZPV	Caviar 160GB UDMA100 8MB 7200rpm	51.76	44.05
25T3PV	Caviar 200GB UDMA100 2MB 7200rpm	59.47	50.61
25T5PV	Caviar 200GB UDMA100 8MB 7200rpm	62.11	52.86
2N7DPV	Caviar 250GB SATA150 8MB 7200rpm	87.75	74.68
25LSPV	Raptor 74GB SATA150 8MB 10000rpm	118.01	100.43

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quicklink	APPLE	£ inc VAT	£ ex VAT
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3L74PV	iPod shuffle 1GB	94.00	80.00
3ML0PV	iPod Mini 4GB - Silver	134.99	114.89
3MK2PV	iPod Mini 4GB - Blue	134.99	114.89
3MKYPV	iPod Mini 4GB - Pink	134.99	114.89
3ML1PV	iPod Mini 4GB - Green	134.99	114.89
3ML3PV	iPod Mini 6GB - Silver	164.99	140.42
3ML2PV	iPod Mini 6GB - Blue	164.99	140.42
3ML4PV	iPod Mini 6GB - Pink	164.99	140.42
3ML5PV	iPod Mini 6GB - Green	164.99	140.42
3MLJPV	iPod Photo - 30GB	225.00	191.49
3P47PV	iPod Photo - 60GB	310.98	264.67

quicklink	CREATIVE	£ inc VAT	£ ex VAT
3JYKPV	MuVo N200 128MB - White	42.49	36.17
3JYLPV	MuVo N200 256MB - White	56.99	48.51
3JYMPV	MuVo N200 512MB - White	75.00	63.83
3JYNPV	MuVo N200 1GB - White	105.00	89.37
3JYPPV	MuVo N200 128MB - Black	42.49	36.17
3JYDPV	MuVo N200 256MB - Black	56.99	48.51
3JYRPV	MuVo N200 512MB - Black	75.00	63.83
3JYSPV	MuVo N200 1GB - Black	105.00	89.37
39TXPV	Zen Touch	156.26	132.99

quicklink	SONY	£ inc VAT	£ ex VAT
3MKPPV	NWE105S 512MB MP3 Walkman Silver	76.02	64.70
3MM4PV	NWE107S 1GB MP3 Walkman Silver	95.17	81.00
3MMMPV	NWE507S 1GB MP3 Walkman FM Tuner Silver	152.16	129.50
3MMBPV	NWE405B 512MB MP3 Walkman FM Tuner Black	95.17	81.00
3MMFPV	NWE407B 1GB MP3 Walkman FM Tuner Black	123.37	105.00
3MMHPV	NWE407R 1GB MP3 Walkman FM	123.37	105.00

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quicklink	ARCHOS	£ inc VAT	£ ex VAT
39GPPV	AV420	289.99	246.80
39GDPV	AV480	439.99	374.46
3NBHPV	AV4100	558.99	475.74

quicklink	CREATIVE	£ inc VAT	£ ex VAT
3F1YPV	Zen Portable Media Centre	311.98	265.52

quicklink	HAUPPAUGE	£ inc VAT	£ ex VAT
3JTLPV	Portable MediaMVP	339.99	289.36

quicklink	MUSTEK	£ inc VAT	£ ex VAT
3HVPV	PVR-A1 Media Centre	79.99	68.08

quicklink	SMARTDISK	£ inc VAT	£ ex VAT
3KMSPV	PVR-H140 Portable Media Centre	199.99	170.21

quicklink	FLASHTRAX	£ inc VAT	£ ex VAT
3P4PPV	XT 40GB	249.29	212.17
3P4DPV	XT 80GB	332.99	283.40

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quicklink	SONY	£ inc VAT	£ ex VAT
389XPV	DAB Digital Radio	125.59	106.89

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quicklink	LITE-ON	£ inc VAT	£ ex VAT
3N8HPV	LVW-5006 DVD Recorder	145.00	123.41
3KBJPV	LVW-5045 DVD Recorder 160GB	299.98	255.31

quicklink	SONY	£ inc VAT	£ ex VAT
2MSWPV	RDR-GX210 DVD Recorder	238.52	203.00
3J9APV	DVPLS785VS DVD Player with SACD DTS DivX	116.99	99.57
3J95PV	DVPNS955VS QS DVD Player SACD DivX DTS	209.99	178.72

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quicklink	HAUPPAUGE	£ inc VAT	£ ex VAT
3GCDPV	Dec 1100t	47.00	40.00
24M4PV	Dec 2000t	99.99	85.10

quicklink	MUSTEK	£ inc VAT	£ ex VAT
3P7MPV	DVB-T102 Freeview Receiver	55.89	47.57
3P7NPV	DVB-T202 Freeview Receiver	82.84	70.51

quicklink	SONY	£ inc VAT	£ ex VAT
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quicklink	APPLE	£ inc VAT	£ ex VAT
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2Z73PV	iPod Remote & Earphone Kit	34.95	29.75

quicklink	SHURE	£ inc VAT	£ ex VAT
3FDDPV	E2c Earphones	57.34	48.80
3FDSPV	E3c Earphones	115.06	97.93
3FDRPV	E5c Earphones	288.99	245.95

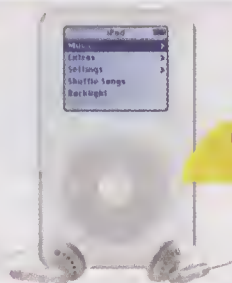
quicklink	SONY	£ inc VAT	£ ex VAT
11VCPV	MDR-E829V Fontopia Headphones	13.99	11.91
2G2BPV	MDR-ED21LP Fontopia Plus	14.00	11.92
2G6CPV	MDR-ED31LP Fontopia Plus	17.00	14.47
31R8PV	Street Style Headphones	22.99	19.57
2LHWPV	Open Air Cordless Headphones	25.00	21.28
2GBYPV	MDR-EX71SLB Fontopia Headphone	27.00	22.98

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quicklink	CREATIVE	£ inc VAT	£ ex VAT
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3HJMPV	TravelSound i300	45.19	38.46
3M91PV	Travelsound 500 - Notebook	45.82	39.00
3HJBPV	I-Trigue 5600	119.77	101.94

quicklink	JBL	£ inc VAT	£ ex VAT
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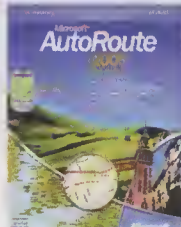
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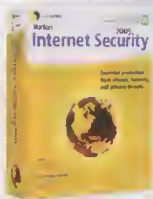
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3PG3PV Adobe InDesign CS2 VU	157.86	134.35
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# One Hand in the grave

It's survived takeovers before, but this could be it: Adobe is merging with Macromedia and Illustrator has learned vector tracing. Come in FreeHand, your time is up

It probably isn't polite to start referring to FreeHand in the past tense, but is it really worth delaying the obituary any longer?

The dust won't settle on Adobe's merger with multimedia arch-rival Macromedia for months, but we know one thing already: Macromedia FreeHand has as much chance of surviving the merger unscathed as I have of hosting the 2012 Olympics in my back garden. Not much then.

## History lessons

Experience tells us it's time to pen an effusive farewell to this venerable vector editing program. Back in 1994, when Adobe took over Aldus in order to get its hands on the (then) market-leading DTP (desktop publishing) application, PageMaker, FreeHand was the part of the bargain labelled 'unwanted extra'.

Adobe quickly discarded FreeHand because it didn't see the need to have another illustration application alongside its own. Since then, Adobe Illustrator has cemented its position as the market leader, so there's no reason to think the company will be any more welcoming this time around.

There are those who argue that dumping FreeHand was a silly move. After all, 11 years later, FreeHand is still easier to use than its rival and, in some ways, more powerful. Its fans point to features that have never made it to Illustrator, such as multi-page support - although I've never found that a compelling reason to pick an illustration program.

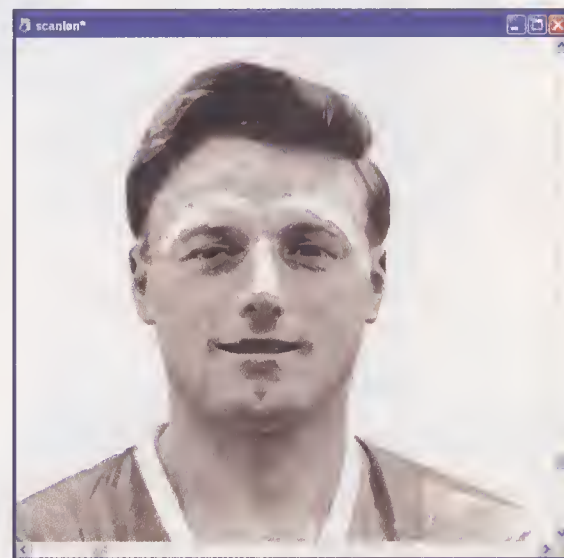
A far more vital piece of one-upmanship has been FreeHand's

tracing tool, which speedily and accurately converts imported bitmap images into vector files. Although programs such as CorelDraw have comparable features, Illustrator traditionally had nothing. If you wanted to convert pixels to vectors in the Adobe world, you had to buy a separate application - Streamline.

Vector conversion is a big deal to digital artists. Working with vectors offers plenty of advantages: as the images are made up of curves and polygons, they can be resized without loss of quality - which is useful if you need to repurpose an image for use in print or on the web. And they are also usually smaller in file size and easier to edit than their bitmap equivalents.

## Playing the trace card

So the thing that surely nails the coffin shut on FreeHand is the arrival of vector tracing in Illustrator CS 2.0. Admittedly, Adobe has just exhumed the functionality of Streamline, given it a new name - Live Trace - and tagged it on to Illustrator, but it's clearly the program's standout



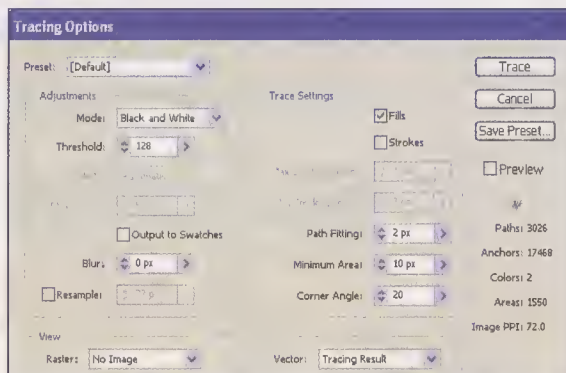
**FreeHand's vector tracing tool produces excellent results**

**Live Trace settings are very customisable**

upgrade. And, as it's more powerful than FreeHand's vector tracer, the final reason for Adobe to hang on to it has disappeared.

At first, Live Trace looks nothing special. If you import a bitmap and apply Illustrator's default trace preset to it, you end up with rudimentary black-and-white, high-threshold line art, but the beauty of Live Trace is that you can switch between a number of presets for increasing levels of detail, and even tweak those settings in an exhaustive dialog box. Illustrator will then redraw the trace according to the settings.

It's called Live Trace because the link between the original image and the artwork remains throughout the vector translation process, allowing you to fiddle about to get the settings you want. It's only when you press an incongruous-sounding Expand button that the changes are made more



TOM GORHAM

Tom is a technology journalist and author who has been enthusing about multimedia and design for more than a decade, even when nobody was taking any notice. Originally based in London, he now lives and works in Edinburgh. Email [multimedia\\_advisor@idg.com](mailto:multimedia_advisor@idg.com) with your comments, tips and suggestions.

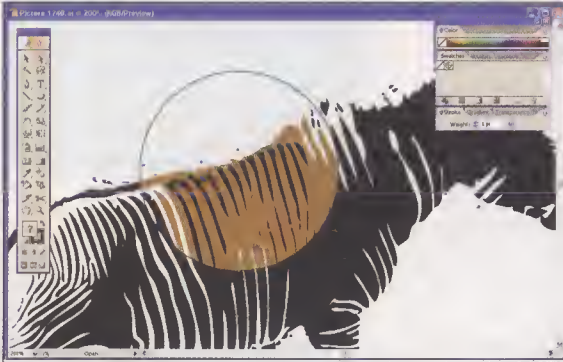




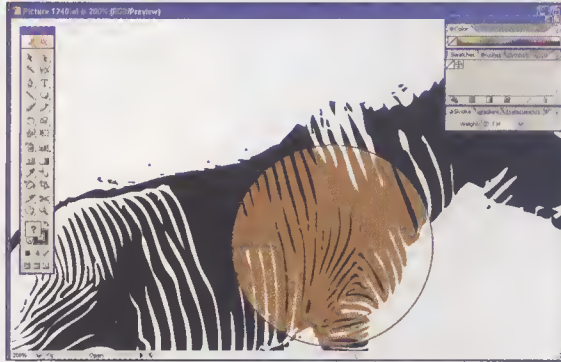
Far left: the original bitmap file, imported into Illustrator



Left: the default Live Trace preset produces stark results



Far left: Live Paint makes it easier to colour layered documents



Left: applied to intersecting objects, Live Paint effects move with the intersecting layer

permanent. Live Trace can hardly be described as fast – the complexity of the translation calculations slows things down and more impatient types will end up holding a finger in front of the progress bar to check it's moving.

But at the highest setting it's nearly impossible to tell the difference between a vector drawing and the original photo. And that's good.

### Paint killer

What adds further value to Live Trace is the associated Live Paint feature. This makes it much easier to colour

complex documents, breathing life into simple vector files.

Rather than treating the document as a layered file, Live Paint lets you work with it as seen – even the intersections between paths can now be coloured separately. This makes it easy to apply complex colour effects to line art drawings.

Cleverly, paint effects move with the object they are applied to. For example, if you apply a Live Paint fill to an object that overlaps another area, its colour will follow when the other expanse moves.

The process is made easier with Live Paint's Gap Detection feature, which accepts that the objects in vectorised images are rarely neat polygons. Gaps between lines are closed, so it's much easier to apply colours to discrete areas of the image. Not perfect, but a lot easier.

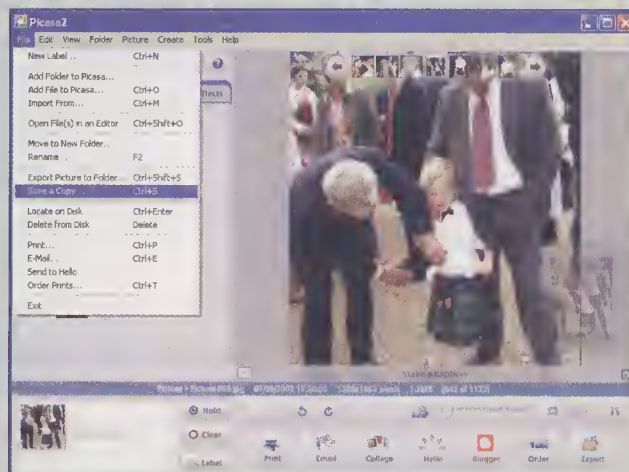
Illustrator may be difficult to love, but these improvements surely mean FreeHand has no future at Adobe. But still, it would be some compensation if it was spun off yet again to a company that would cherish and develop it. Microsoft, Corel – are you listening? ☒

## Streamlining a photo database

One of the most trumpeted features of image-management applications such as Picasa and Photoshop Elements is their non-destructiveness: when you adjust an image in either, the original remains unscathed. And you can always return to it if you change your mind about amendments. While this is a good safety net, it means you end up with multiple copies of your images and a bloated database. How often do you really want to go back to the original, after colour correcting and cropping an image?

Neither program offers an obvious way to delete originals while retaining the edited file, but you can use the following technique to slim down your database. Simply make a copy of the current image – in Picasa, select File, Save a Copy – then delete the original.

But remember that Exif (exchangeable image file format) data, which records important information such as when the original photo was taken, will be destroyed in the process. If Exif data is important to you, be sure to copy it from the original – you can use the excellent Exifer ([www.friedemann-schmidt.com/software/exifer](http://www.friedemann-schmidt.com/software/exifer)) to rebuild the Exif data.



A roundabout way to remove original image files from Picasa

# Optical allusions

Burning video to disc isn't just about DVDs. There are CDs, VideoCDs and Super VideoCDs to consider - and that's before it gets complicated

In the last issue I discussed the all-important matter of analogue video capture. But getting footage on to your PC is only half the story.

Even if you don't plan on any edits, your computer is probably not going to be the final destination for your work. You're much more likely to want to burn clips to disc, either for personal archiving or sending on to friends and relatives.

At this point most of us will think of DVD or VideoCD. But these aren't the only ways to go - in fact, there's now a bewildering array of options. In this column I'm going to discuss the pros and cons of the different optical video disc formats, and show you what you need to create each one.

## Compatibility counts

Most authoring software packages and editing applications provide three basic optical format options: DVD, VideoCD and Super VideoCD. The success of the set-top DVD

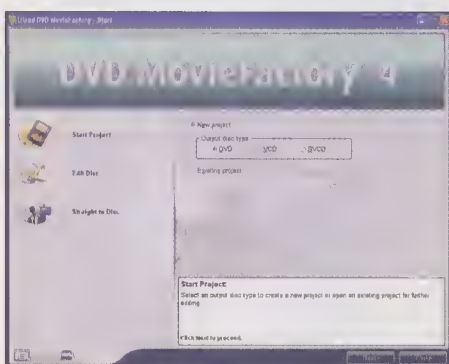
player has made this the overarching format of choice. DVDs use Mpeg2 compression and the same frame size as digital camcorders - 720x576.

By default most software offers an 8Mbps (megabits per second) data rate. This allows you to fit about 74 minutes of video on to a single-layer DVD and more than two hours on a 8.5GB dual-layer disc.

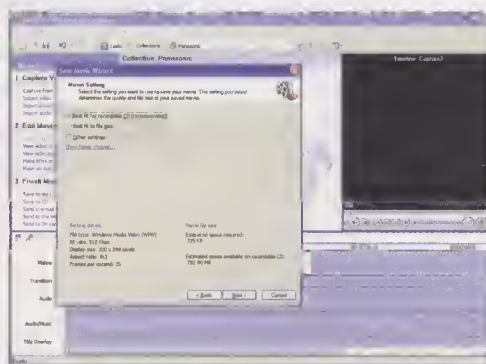
## Quality vs space

You can squeeze more on to a disc by reducing the data rate, but quality will suffer. Going below 4Mbps isn't advisable, meaning two hours is about the maximum for a 4.7GB DVD.


Sound is another consideration. DVDs support three types of audio: LPCM, Mpeg and Dolby Digital. LPCM is similar to CD audio, except that it uses a 48kHz sample rate - rather than CD's 44.1kHz. As it's uncompressed, LPCM produces huge audio files, requiring around 11Mb per minute. Put simply, it's best avoided.



Mainstream disc authoring software such as Ulead DVD MovieFactory 4.0 generally offers only DVD, VideoCD and Super VideoCD format options



The otherwise excellent Windows Movie Maker 2.0 - bundled with Windows XP Service Pack 2 - writes only proprietary HighMAT CDs, not DVDs or VideoCDs



**JAMES MORRIS**

James' interest in PCs stemmed from his fascination with their use in video making. A decade on and he feeds his desktop video obsession by making whacky video art and music promos, although James still does the odd wedding if the reception menu looks good... Email [video\\_advisor@idg.com](mailto:video_advisor@idg.com) with your comments, suggestions and tips.

A more economical solution is Mpeg audio, which compresses sound considerably - compared with LPCM, at least. But Dolby Digital, aka AC3, is the optimum - if it's available with your software. AC3 offers better quality for any given data rate than Mpeg audio can manage. It'll enable you to fit more video on to one disc.

Dolby Digital can shrink the audio portion of your DVD by a factor of seven with no noticeable loss in quality. Most DVD-authoring software packages offer AC3 plug-ins - for a small fee. A number of apps now come with this option as standard, including Ulead DVD MovieFactory 4.0 and Pinnacle Studio 9.0.

## Cheap as discs

However, DVDs aren't always the best option. Although DVD-R discs can be had for as little as 18p each, CD-Rs are cheaper still, at around 10p a pop. If you're planning to send out numerous copies of a short video, consider a CD-based format.

The antiquated VideoCD never caught on in Europe. It doesn't offer noticeably improved image quality over VHS and two discs are required for most movies. But it's a viable option if you have an hour of video to distribute and you're not precious about how it looks. The Mpeg1 compression scheme reduces resolution to 352x288, at a data rate of 1Mbps, but the format can't be beaten for value. And most set-top DVD players will play VideoCDs.

Super VideoCD is a format somewhere between DVD and VideoCD. It uses Mpeg2 compression like a DVD, only it's recorded to CD.



Optical disc formats	Capacity (nominal)	Compression format	Frame size	Data rate	Minutes of video
VCD	700MB	Mpeg1	352x288	1Mbps	70
Super VCD	700MB	Mpeg2	480x576	2.5Mbps	35
MiniDVD	700MB	Mpeg2	720x576	8Mbps	12
DVD	4.7GB	Mpeg2	720x576	8Mbps	74
DVD-DL	8.5GB	Mpeg2	720x576	8Mbps	135
XDVD	4.7GB	Mpeg2	720x576	8Mbps or less	Up to 600

With just 700MB available, Super VideoCD makes a couple of quality compromises. It uses a 480x576 frame resolution and reduces the data rate to around 2.5Mbps, so you can fit about 35 minutes on to a CD. Quite a few DVD players now support Super VideoCD, making it a cheap way of distributing short, high-quality videos.

### Small is beautiful

Some software - such as Roxio DVD Builder - offers a format called MiniDVD. In essence this is a DVD burned to a CD, so it uses the same Mpeg2 frame size and bit rate as a regular DVD. Unless you reduce the data rate, you'll only be able to fit around 12 minutes on a disc.

And most set-top players can't view the format. So MiniDVD is really useful only to distribute cheap demos to people you know will be watching them on a PC.

As an aside, if you're using Windows Movie Maker 2.0 to edit your video and you plan to take advantage of the CD-writing option, be aware that it doesn't use any of the above types of CD-based video technology. Instead, it creates a Microsoft-oriented format called HighMAT using WMV-based files. Virtually no set-top players recognise it. See [www.highmat.com](http://www.highmat.com) for more details.

### DVD recording formats

DVD, VideoCD and Super Video CD are the most important authoring formats. But there are a number of other optical disc types you're likely to come across that were created for set-top DVD recorders and DVD-based camcorders.

In essence DVD-VR and +VR are the same format - save for the fact that one is recorded on to DVD-RW and the other DVD+RW discs. They behave like regular DVD-Video discs, with menus and chapters. But you can edit them. The down side is that not all set-top players will read them, because the underlying file system is different. So while VR discs are great for works in progress, it's best to create a DVD-Video at the end.

### Open all hours

Another format with a similar aim is OpenDVD, which is not to be confused with the movement of the same name striving to make possible the playback of encrypted DVDs on Linux. As with the VR formats, OpenDVD creates discs which can be edited and then changed at a later date.

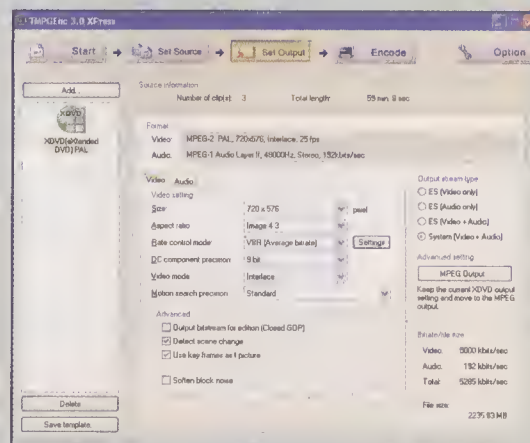
It does this by storing the necessary project, menu and navigational information in a special file in the data zone of the DVD. This can be used to continue the

## The XDVD factor

A curious format starting to appear in authoring and encoding software is XDVD. Not many applications support it yet, but two we know of that do are TMPG Enc 3.0 XPress ([www.tmpeg-inc.com](http://www.tmpeg-inc.com)) and Ulead DVD MovieFactory 4.0 ([www.ulead.co.uk](http://www.ulead.co.uk)).

Grand claims are being made about XDVD being able to fit up to 10 hours of video on to one dual-layer DVD. The way it achieves this is by increasing the GOP (group of pictures) length. The Mpeg2 compression used in DVDs achieves its small file sizes by using GOPs of up to 15 frames that contain only one full frame - the remainder merely record the differences from this initial capture. With an XDVD, the GOP length can be extended up to 64, so you've got one full frame and up to 63 variations, allowing much higher compression ratios.

The down side is that compatibility with set-top players and even PC playback software is far from guaranteed. For more information on the GOP structure used with Mpeg, see September 04's Video Advisor. For XDVD player compatibility, go to [www.tmpeg-inc.com/product/xdvd.html](http://www.tmpeg-inc.com/product/xdvd.html).

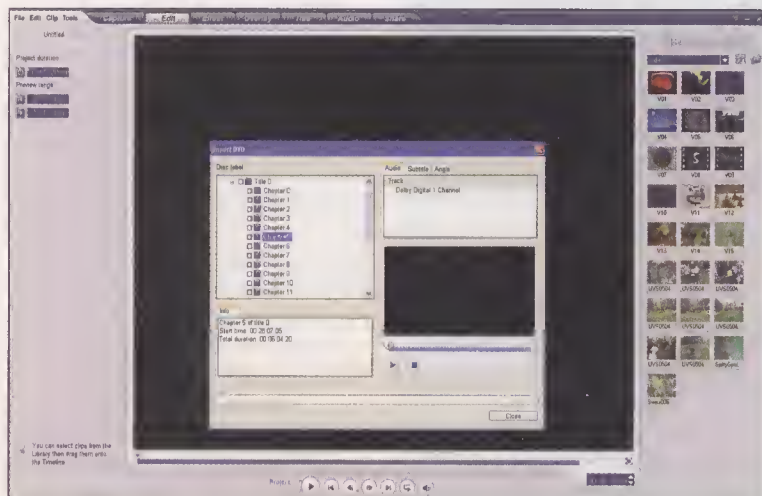


TMPEG Enc 3.0 XPress has the most sophisticated support so far for the unusual XDVD format, which can squeeze a lot more video on to a DVD

authoring process and, because it's kept separate, the DVD has a much greater chance of compatibility with set-top boxes. Unfortunately, creating and editing OpenDVD discs is currently limited to Sonic software, so it's not exactly a standard.

Even if you don't use the VR or OpenDVD formats, it's possible to edit unencrypted DVDs with some apps. Ulead VideoStudio 9.0 and Canopus Let's Edit 2.0 can import DVDs, giving you the option to choose which chapters you want to work on. You won't be able to change the disc itself, but you can at least edit the footage and burn a new one. ☒

Ulead  
VideoStudio  
9.0 can import  
chapters from  
any unencrypted  
DVD, ready for  
editing into a  
new project



# Bruising browsers

Internet Explorer's dominance has made life easy for web designers, but the spread of alternatives such as Firefox mean developers could inadvertently lock out visitors

In the late 1990s, no web developer could afford to ignore the struggle between the innovative but ultimately overwhelmed Netscape and the mighty, canny Microsoft. For most users, the triumph of Internet Explorer over the browser formerly known as Navigator is now ancient history.

For developers it remains a fading, nightmarish memory of a period when much more time would be spent on testing a site than was expended on building the thing in the first place.

## Just like starting over...

Recently the browser market has become slightly volatile again. Some analysts even predict that Internet Explorer could dip below a market share of 90 percent for the first time in years. In response Microsoft has announced that IE7 will not have to wait for Longhorn.

Most of this activity has been due to the relatively sudden popularity of Firefox, which could be seen to be aimed simply at the Microsoft nay-sayers. Yet the release of a new version of Opera has seen a fairly substantial number of downloads, and it's worth remembering that there hasn't been a fresh version of IE for the Mac since 2003 - Microsoft apparently deciding that Safari was enough for Apple users.

## Competition: the nightmare

In addition, in the few months since I've been using Service Pack 2, I've noticed a number of sites that do not work entirely as intended.

Some of IE's security features block ActiveX and scripts that are fairly routinely added to various web pages. Nor is browser compatibility an issue that affects minor sites alone: non-IE-users have recently had problems accessing the online



Firefox still lags far behind IE, but its growth has been rapid

homes of Royal Bank of Scotland, Powergen and the National Lottery.

From a developer's point of view, this raises a major issue that used to seem vitally important, but which we have been able to ignore recently: are you sure you know which browser your client is using? Indeed, if the Mac mini is as successful as some pundits claim, will you even be able to guarantee what operating system they use? And can you afford to ignore Mac users anyway?

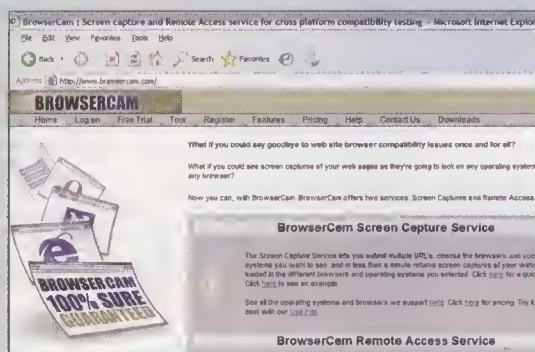
Of course, dipping slightly below 90 percent will mean most developers can indeed ignore the rest but, if you're trying to sell online, locking out potential customers is not a good idea. Indeed, if my experience is anything to go by, relying on ActiveX widgets to perform fundamental tasks - such as navigation - is not clever.

## Back to browser basics

This is by no means a Microsoft-bashing exercise. IE remains my main browser of choice - or convenience, rather. It's the only browser supported

## Site of the month

As the name suggests, Browsercam (www.browsercam.com) works as a virtual camera that takes snapshots of URLs so that developers can see what sites will look like on different operating systems and with different browsers. It can be expensive for regular use, and we would recommend saving all your testing to perform in one go using the \$20 day rate (about £11). It is, however, the most comprehensive tool available, and offers a free 24-hour trial period so you can check whether it's of any use.



A simple, comprehensive service to check your site's compatibility with different systems and browsers



JASON WHITTAKER

As well as being a contributor to *PC Advisor* since the first issue, Jason is the author of a number of books on IT and new media, including *Web Production for Writers and Journalists* and *The Cyberspace Handbook*. He teaches and consults on web design and new media in the Southwest. Email [web\\_development\\_advisor@idg.com](mailto:web_development_advisor@idg.com) with your comments, suggestions and tips.

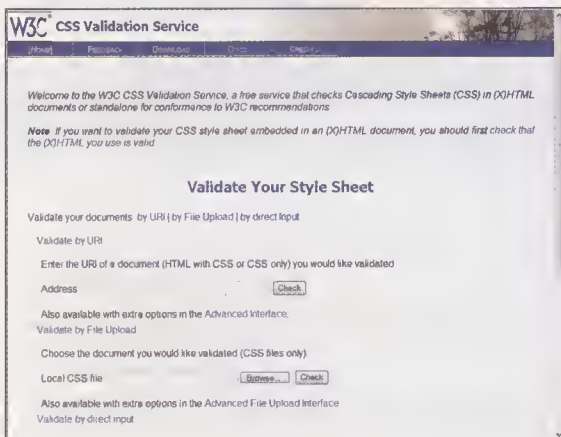


## Converting PDFs the easy way

It's partly because of the vagaries of HTML-rendering that Adobe's PDF format has become so popular online, complementing its success as a means of distributing printed documents. The winning idea is that you'll always be sure of how your documents appear when opened in Acrobat, regardless of the browser, operating system or hardware being used by the recipient.

While very laudable – and extremely useful at times – PDF is generally much less flexible than HTML. It's possible to set up Acrobat to create searchable indices of PDFs – Google and other search engines have read them for a while now – documents created for print tend to be much less accessible than HTML. In addition, the overhead of the format means that it tends to be more bloated than a web page.

This is where PDF2Web comes in. Using a fairly straightforward interface, you can load PDFs and convert them into HTML pages with just a few clicks. The version I use is provided as a free application from 1&1 ([http://faq.oneandone.co.uk/web\\_applications/pdf2web](http://faq.oneandone.co.uk/web_applications/pdf2web)), which has the advantage that it's freely available to anyone using the £5 Home hosting service and upwards.



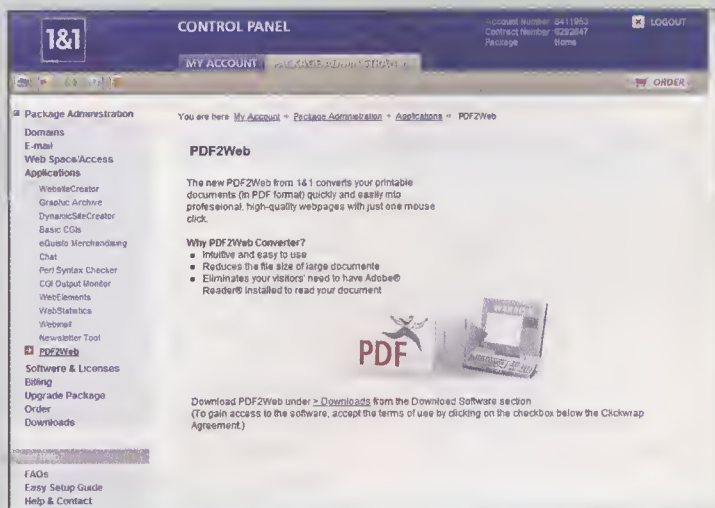
in my non-PC Advisor workplace (no surreptitious installation of Mozilla is allowed – and I have tried).

Nor do I for a minute consider the bad old days of incompatibilities between Netscape and IE to have been anything other than, er, the bad old days. But the following points will help to widen access for all visitors.

- **Go ActiveX lite** And, indeed, Java and scripting lite. One irritation thrown up by SP2 is the small but significant number of sites that rely on such things as pop-up consoles or ActiveX controls for navigation. The understated `ahover` instruction in a stylesheet is still the best way to include interactive links.
- **CSS for layout** Cascading style sheets are not restricted to text styles – they're extremely useful for positioning blocks of text in layout.

Five years ago a lot of this was done via tables, which was often a problem for displaying pages in different browsers or operating systems. These days it's generally a

Use the W3C validator to ensure that your site complies with web standards



Available free as part of 1&1 hosting packages, PDF2Web is an easy way to convert print documents to HTML

lot simpler to use CSS to provide layout – for example, multi-column pages – but one word of warning: many browsers can be 'quirky' when interpreting CSS. Use the validator at <http://jigsaw.w3.org/css-validator> to check your code. And include a doctype statement to enforce standards (see [www.w3.org/qa/tips/doctype](http://www.w3.org/qa/tips/doctype) for more on this).

- **Test for compatibility the easy way** Once it was common for web developers to install as many browsers as possible to test for potential mistakes, but my own recommendation would be to take the easy way out and use Browsercam (see *Site of the month*, left).

If you enjoy a challenge, however, you could use Virtual PC or – even better – VMware, to test multiple operating systems as well as several different browsers.

### Safe not sorry

If they're totally honest, most web developers probably don't regret the fact that one browser came to dominate the market – it's made life a whole lot easier.

Nonetheless, there's no denying that change is in the air – however minor it may be. And the best way to ensure that you're prepared for anything is to make your sites as compliant with industry standards as possible. ☒

ROGER GANN

Career dead-ends aside, for the past decade or so Roger has earned his crust as an IT journalist, producing the UK's first DTP-produced newsletter then editing the UK's first Windows mag. He's now a freelancer, writing about all manner of IT subjects. He also likes to fix other people's networks when he can. Email him at [network\\_advisor@ldg.com](mailto:network_advisor@ldg.com) with your comments, suggestions and networking tips.

# Remote control

It's undoubtedly handy to be able to access PCs without physically needing to be there - but it can be tricky to set up. Port forwarding is the easy answer

I don't know about you, but I simply can't live without remote access. Well, more accurately, I can't work without it.

Thanks to remote access I can look after a raft of widely dispersed PCs and networks from the comfort of my office or home. This is a real boon to my customers. And me. Sometimes all it takes to fix a problem is 10 minutes of remote tweaking - which beats a three-hour round-trip, I can tell you.

This upsurge in the popularity of remote access is partly down to the widespread availability of broadband. Thanks to fast, always-on internet connections, you can operate a remote PC with responsiveness not far off what you'd get if you were sitting in front of it. That's the good news

- the down side is that this doesn't just 'happen', but requires a bit of configuration. Especially when dealing with the remote router.

## NAT's magic

The modern network router is a godsend to small networks. In return for one public IP address you can connect as many as 253 PCs to the internet, each one with a 'private' IP address - in other words, in the 10.x.x.x or 192.168.x.x ranges. How does it manage this? It's all thanks to the miracle that is NAT (network address translation).

The NAT router or internet gateway translates all outbound requests from individual PCs with private IP addresses on the LAN (local area network). It alters the network packets so they appear


## Understanding data ports

To grasp how this procedure works, it's important to understand the way in which ports send data. Many different kinds of information are transmitted across a network and certain types must pass out of specific ports.

The data type is known by the protocol, or rules, that it follows. For example, emails and games you play over the internet follow very different protocols. Typically, the rule determines the ports to which the data is passed. There are 65,535 port numbers, which can be further specified as either TCP or UDP.

Here are a few common protocols and the ports associated with them:

Protocol	Usage	Port
FTP	File transfer programs	20, 21
SMTP	Outgoing mail	25
HTTP	Web content	80
POP3	Incoming mail	110
Telnet	Remote computer administration	23



**Roger Gann Associates**  
**Remote Web Workplace**

[Log Off](#)
[Main Menu](#)

Welcome, Administrator.

The links on this page enable you to use components of your Internet. To protect the security of your business network Web Workplace.


**Connect to Server Desktops**  
 Access server desktops within the network.

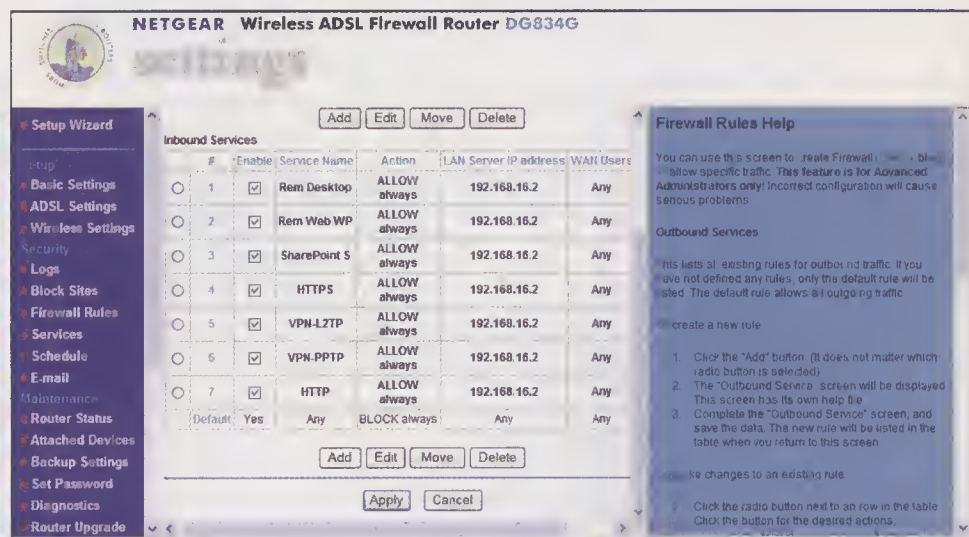

**Connect to Client Desktops**  
 Access client desktops within the network.

to originate from a single public IP address - and this is all the outside world can see. When the requested packets return, the NAT reverses the translation and routes the data back to the originating private system. Clever stuff indeed.

The Remote Web Workplace is a really cool feature of Small Business Server 2003 - but you'll need to reconfigure your internet gateway

However, NAT works only one way: when packets originate inside the network. If unsolicited inbound packets arrive from the internet, as they would if you were attempting remote access, the router hasn't got a clue which PC, if any, they should be





routed to. So it drops them - acting as a basic firewall if nothing else.

Imagine, if you will, that you're trying to access from afar a web server you run on your network. When the HTTP requests reach your internet gateway, it will attempt to connect through port 80, as is standard. In this case the request will be dropped by the router - as far as it is concerned, no one on its network has asked for this information, so there's nowhere to send it. There's no corresponding NAT entry for this request, so the port is not open (see *Understanding data ports*, left).

### Any port in a storm

The good news is that it's possible to traverse the NAT obstacle. There are several ways of achieving this, the most common being port forwarding - also known as port mapping.

Applications that need to interact with your PC across the internet will include a port number in their request. When a port is forwarded, a table is created in the router. This allows the request directed at port number 'X' to be sent on to a different port with a private IP address on one of the network's PCs. All this is specified by a port-forwarding rule.

To get external access to the web server above we'd need to create a port-forwarding rule on our internet gateway. It would send all external HTTP requests received on port 80 to the corresponding port of the private IP address of the server. And likewise for port 21, if that PC was also running an FTP server.

Be aware that the exact procedure for port forwarding varies for each brand of router.

### Forward thinking

Port forwarding can sometimes be difficult to configure, but it provides a relatively safe way of running a server from behind a firewall. Since only a single port (or a small series) is exposed to the internet, the computer is easier to secure. Additionally, this procedure allows you to run multiple kinds of servers from different computers on your network.

Many broadband routers have port-forwarding configuration screens for standard applications such as FTP, HTTP and telnet, as well as special screens for custom ones.

With Linksys routers, you're presented with a table to fill out with IP addresses and the ports that are to be forwarded. With Netgear routers

Setting up port forwarding on a Netgear DG834G is not obvious. But it works well once you've mastered it

On a Linksys it's much easier to set up - you can see that you need to forward a handful of ports

you have to add a customised 'service' to a firewall rule to permit inbound or outbound traffic - if the service you require isn't in the predefined list.

### Port knocks

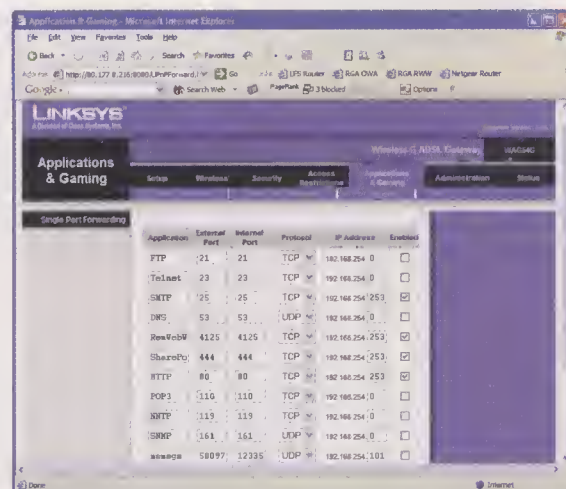
Be warned: don't think that port forwarding through a firewall is a substitute for having a computer connected directly to the internet. It is an inherent restriction of this strategy that only one PC behind the NAT gateway can use a specific inbound port at a time.

If all internet applications used only one unique port, there wouldn't be much confusion about how all this stuff works - but, alas, life is never that simple and not all applications work that way. Many - messaging and gaming ones in particular - use multiple ports and groups. These are generally the hardest things to get working across a NAT gateway.

### Risky business

Some apps are almost impossible to 'port forward' because they use multiple ports, port ranges, dynamically assigned ports and special protocols. For these tricky applications, you'll just have to place the PC on which you want to run the application outside the firewall, either physically, or via your router's DMZ option.

This allows only a single PC to expose all of its ports to the internet - which is better than endangering your network. ☒



# Free Windows tweaks

Despite its hard drive-hogging ways, there's a host of things XP can't do. Scott Dunn and Rosemary Haworth show you how to extend Windows' repertoire using 10 great free tools

**W**e all know Windows is far from perfect - it's bulky, a little clunky and using it can seem counterintuitive. Somehow, whenever there's a specific task you suddenly find you need to complete, what seems on the surface to be relatively simple then turns out to be awkward or impossible within the standard Windows setup.

Fortunately, developers are always coming up with ways to improve this situation. They have the tools to fix such imperfections and omissions.

One common gripe is that when it launches, Windows doesn't necessarily display the folders or even the drive you most often use. If you store everything in My Documents on the C drive, there's no problem, but it takes a

freeware app such as SnapFolder to make Windows reveal and open your favourites from the off.

## Where are you?

Similarly, for all its demanding system requirements Windows isn't well equipped when it comes to finding files. The process hobbles your CPU and takes an age to produce the goods. Agent Ransack improves on this, dedicating itself to the task of seeking out elusive folders and letting you save past searches and search preferences.

These probably aren't the only gaps in your computing toolkit, so we've assembled 10 fabulous freebies designed to bolster Windows. You'll find them all on our cover disc.



## Backing up ain't hard to do

There are plenty of backup programs around, but few are as elegant and powerful as SyncBack from 2BrightSparks. Its primary functions are backing up and restoring data, and synchronising – copying in both directions to make the contents of two folders identical.

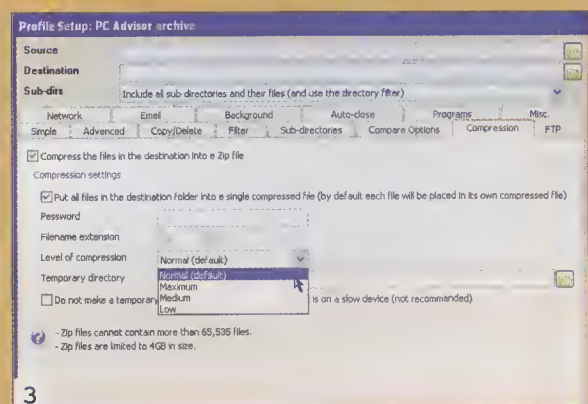
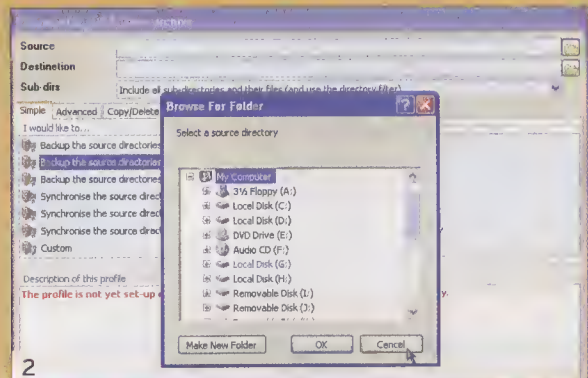
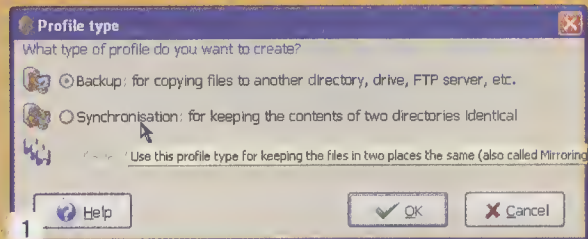
SyncBack works with network drives, FTP servers and CD and DVD drives, as long as you preformat the disks using UDF (universal disk format) – a relatively new way to format CDs and DVDs. The program automatically emails you its log file when your backup has been completed. It also shuts down any applications you specify before beginning and can launch applications before or after it finishes.

**1** As soon as SyncBack is installed you can set up profiles for common backup or synchronisation chores and automatically run them with the program's scheduling feature. When prompted, enter a name for your backup folder and browse to where you store your files

**2** Then specify the device to which you wish to back up or the location of the FTP site you use for remote storage

**3** Unlike some backup programs – including the software built into some versions of Windows – SyncBack can compress files using the standard ZIP format. This lets you easily find and retrieve a single file inside an archive without having to navigate through a backup program.

At the bottom of the SyncBack pane click on Expert modes, then tick the box on the Compression tab to zip up files and adjust the level of compression



## Right-away renaming

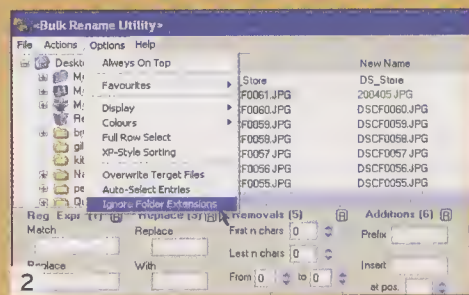
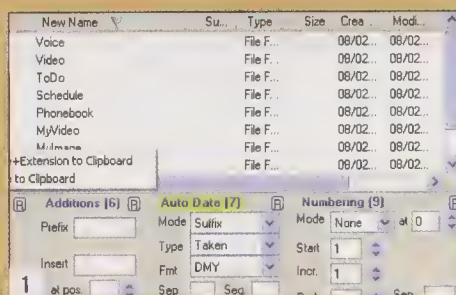
Having dumped 10,000 photos from your digital camera on to your hard drive, including a smorgasbord of memories from birthdays, weddings and holidays, keeping tabs on which ones are where is an issue. Bulk Rename Utility can help.

Launch BRU from its Start menu icon, or right-click the folder containing the files you wish to rename.

The utility's settings look complicated – numbered and highlighted sections indicate the order in which options will be applied. You get a great deal of power, not just for searching and replacing or adding dates and numbers (picture 1), but

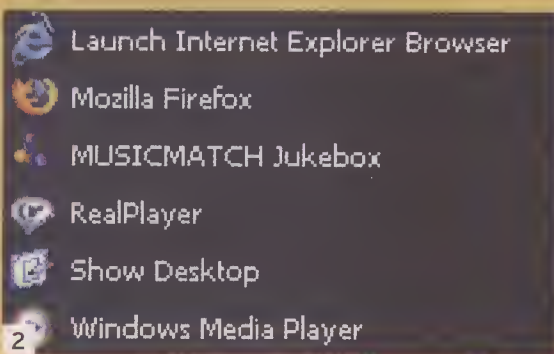
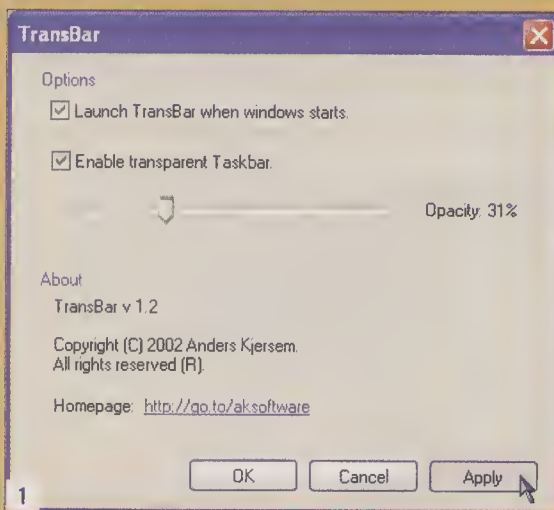
also for such features as appending the folder name or storing renamed copies in a folder of your choosing (picture 2). BRU's Tip of the Day helps you learn gradually.

Like most good utilities, BRU shows you a preview of your new file names to avoid unhappy surprises.



## Taskbar tweakery

Perhaps you don't like the taskbar hiding your lovely wallpaper. Or you need every inch of your desktop. You can use the Properties dialog box to hide the taskbar until your cursor moves over its original position. Unfortunately, this leaves an unsightly line along the edge of the screen and the action can be far from brisk. So...



**1** Make the taskbar wholly or partially transparent in 1 percent increments using Transbar. Another possibility is TaskbarHide, which instantly pops the taskbar on or off screen - minus the ugly line - whenever you move your mouse over or away from it. Move the slider to the left to make the taskbar more opaque

**2** If you want to eliminate your taskbar altogether, try GeoShell. This open-source program offers floating toolbars that you can group and rearrange to your heart's content. Your desktop will be cleaner because its icons go into a menu instead of cluttering your screen. The menus can be more compact than a typical Windows desktop arrangement, although some clutter remains

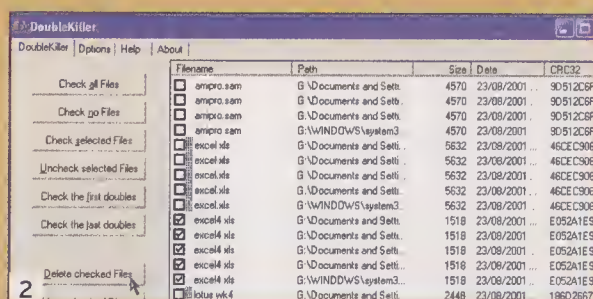
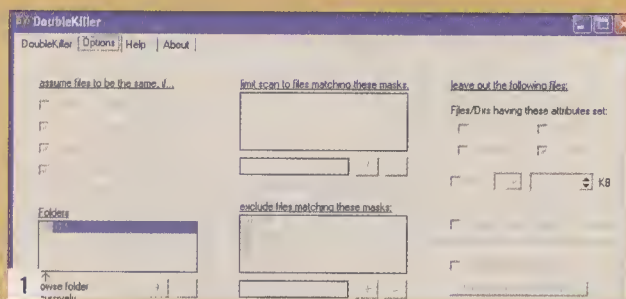
**3** An alternative to floating toolbars is to anchor them to an edge of the desktop. GeoShell's skin tool gives you more control over your desktop's look and feel. You can even download plug-ins to extend its features

## Destroy duplicates

Does your hard disk have duplicate files? Not backups, but useless copies of the same file you may have unknowingly downloaded or created several times. DoubleKiller can help sort out this messy inconvenience

**1** There are some quirks in DoubleKiller's interface. You need to start with the second tab, Options, before you can use the first, so click on this to begin. Now get DoubleKiller to search various drives for the file types you specify. It'll hunt for things with the same name, size, date and/or CRC32 checksums (a way of checking file contents)

**2** After completing the search, use DoubleKiller's tools to launch, move or delete the duplicate files it has found



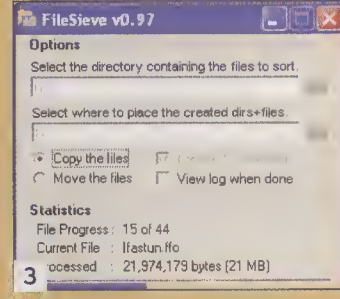
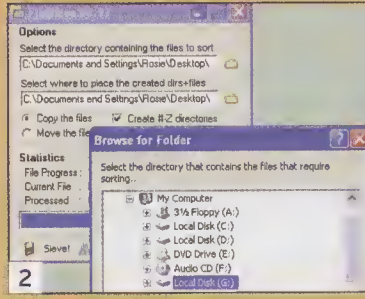
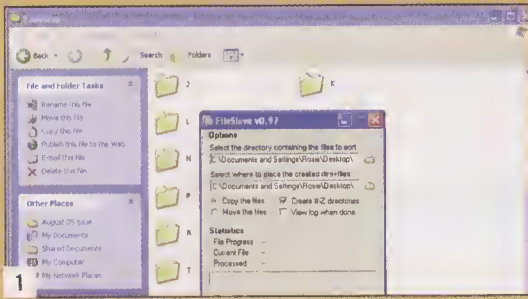


## Super sorting

Now that you've renamed all your photos, do you really want thousands of them to occupy the same folder?

You can organise a large number of files by creating folders for each letter of the alphabet - a folder named A, another named B and so on. Then simply shift your files into those folders based on their names. FileSieve can automate this tedious work (picture 1).

The program creates 27 folders in the location of your choice - one for each letter of the alphabet, plus '#' for files starting with numbers and symbols. It then copies or moves files into the alphabetically appropriate location (picture 2). Once you've created the folders you can run FileSieve to move or copy additional files, without having to create the folders all over again (picture 3).



## The folder you want - when you want it

One of the most useful Windows shortcuts makes folders open where and how you want. But creating shortcuts using your operating system may entail setting up messy command-line switches that are difficult to remember.

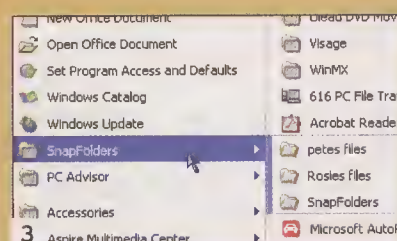
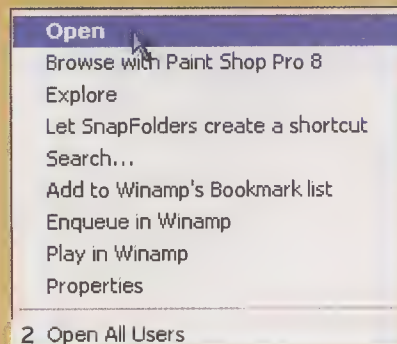
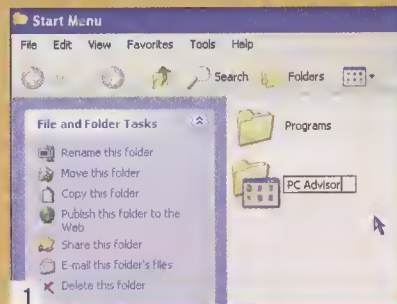
**1** To make shortcuts the Windows way, create a specific submenu on your Start menu. Right-click the Start button and choose Open, File, New, Folder. Then type a name for your folder

**2** To add shortcuts to this folder, right-click and drag another one to it. When you release the button, choose Create Shortcut(s), Here. In Windows 2000, Me or XP, this reveals a menu of the contents, rather than a shortcut to open the folder.

To create a quick way to open an Explorer window in any Windows version, go to the new Xplorers folder, right-click inside it and then choose New, Shortcut.

An easier option than Windows' process for specifying which drive's contents to display as an Explorer tree menu is to install SnapFolders 2005 from our cover disc. It doesn't offer every possible tweak the command-line approach does, but it saves a lot of time and trouble

**3** Right-click any folder to create a shortcut via the context menu. Or launch the utility from its own icon to see a dialog box where you can specify preferences. SnapFolders puts the shortcut on your Start menu or on a submenu



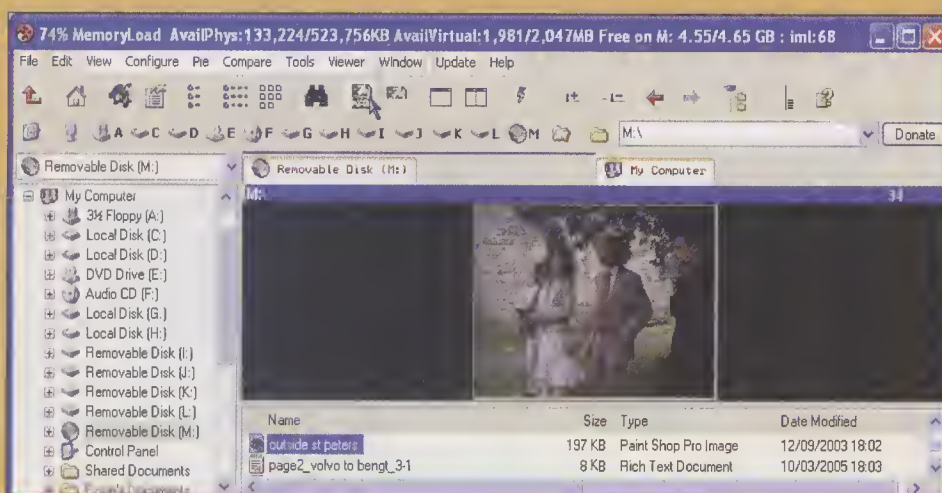
## File-management muscle

Many moons ago a Windows program called File Manager showed multiple drives and folders, so you didn't have to keep switching between – and manually rearranging – multiple Explorer windows. FileAnt takes you back to this golden age with a powerful yet nimble file-management tool that opens multiple folders at once, making them accessible via tabs. It also displays two folders at a time via its tiling option.

The program has built-in viewers for previewing files without opening separate application windows, as well as its own FTP client, a pie chart that shows the size of folders, custom icons and folder synchronisation. It even has an MP3 player accessible from its tray icon menu. Prettier file utilities are available, but few are as powerful as FileAnt.

Click on the icon under Viewer to get FileAnt to preview a selected file without opening it. If the thumbnail is too small, choose Max panel for viewer under the Viewer drop-down menu options (see picture).

For a visual overview of the space available on a local or removable disk or drive, choose Pie and select Percent or Megabytes in the Label format options list.



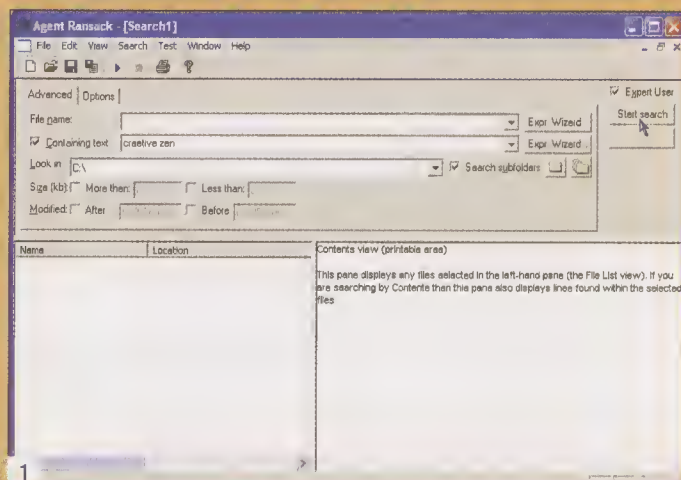
## Find that file

Looking for a needle of a file in a hard-drive haystack? Sometimes Windows' built-in search tool just isn't up to the job. Fortunately, Mythicsoft has given us Agent Ransack, a free version of its FileLocator Pro file-search utility. Agent Ransack relies on the usual DOS wild cards or on more robust regular expressions to search for your files. The Search wizard explains what these things are and walks you through specifying the necessary parameters.

**1** Enter your search parameters or keyword. Here we've asked Agent Ransack to locate all

files containing the phrase 'Creative Zen'. Windows' Search assistant would eventually find most things relating to our MP3 player, but Ransack was a great deal faster

**2** Click on the Expert User option to get Agent Ransack to save search criteria and hunt through past search results





# tiny.com

## Built in Britain, the key to low cost computing

**18 Months has now passed since Tiny.com launched and it's well known for having the lowest PC prices. We talk to Mozie Mafi manufacturing director at Tiny.com to see how things have progressed and how he contributes to keeping costs low and quality high**



Tiny.com's manufacturing facilities have produced half a million PC system since launch



**Mozie Mafi**  
Manufacturing  
Director  
at Tiny.com

### How have the first 18 months of Tiny.com gone?

**MM:** Very well indeed, we have built half a million PC systems and Notebooks. We have also assembled some 150,000 TFT monitors. Quality standards have remained high and we have achieved a 'PC failure rate' rate under 2%. We believe this is the lowest in the industry. With production at these levels we continue to be the UK's largest PC manufacturer.

### Producing all these PCs in the UK must be expensive, how do you compete with other parts of the world like China?

**MM:** Surprisingly, labour costs account for a very small percentage of the cost of the PC. In fact, in our factory labour costs are on average just 2% of the selling price of the PC. There are more important factors that effect the costs like depreciation and transport costs.

Plus we have the ability to react quickly to customer needs. Even if labour costs in China are half the costs in the UK, the savings that Tiny.com make on these other elements are much more significant and overall we can be more cost-effective than companies that subcontract manufacturing to China.

### How do you monitor quality?

**MM:** We have several levels of quality testing. Firstly, all components are individually evaluated for compatibility, reliability and CE. Our development labs are testing sites for all major component and software suppliers and all of our systems are 100% Microsoft WHQL compliant. Secondly, there are several levels of quality checking on the production lines including special software for "burn-in" and system compatibility testing. Finally, every PC undergoes a manual quality check prior to dispatch. We also liaise with our service department to monitor support calls and long-term component failure rates on each model.

### Do you manufacture to order?

**MM:** Our most popular models are batch built which reduces our manufacturing cost. We monitor sales on a daily basis and plan production to build just-in-time. We aim to have no finished stock in our warehouse as finished stock will very quickly start to depreciate in value.

### What's the secret of Tiny.COM's low prices?

**MM:** The whole philosophy of the company is to keep overheads and unnecessary costs to a minimum. We don't advertise on TV and we don't have retail stores. This way, we can use the money we save to provide much higher specification systems at the UK's lowest prices.



The UK's largest PC manufacturing facility

### We have seen you advertising Plasma Televisions, do you produce these as well?

**MM:** Yes, we launched them in November last year and have been assembling them in this factory. It was the next logical step from TFT monitor production. We have applied the same cost saving philosophy to produce TV screens for less than the big brands using the same quality component parts. We buy the glass panels direct from the manufacturer in the far east and cut out a number of middlemen to sell them direct to our customers.

To find out more about **tiny.com** and their impressive product range, visit [www.tiny.com](http://www.tiny.com) or call 0870 830 3125



# Tiny Tornado

## 3000+ PCI EXPRESS



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- MSI 7093 RX480 Motherboard Socket 939 Microstar PCI Express board with ATi RX480 chipset and featuring PCI Express x16 slot. Supports up to 4 SATA devices and 2 IDE channels.
- 500GB Serial ATA WD hard disk space, (2x250GB Western Digital drives) 7200RPM utilising ultra fast SATA interface. Provides huge storage space for data, photos and other files.
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# Cast away

Podcasting is the latest internet hit. Monica Lee explains where to find content, while Rosemary Haworth is involved by publishing some broadcasts of your own

Once you've loaded your record collection on to a digital music player, the next step is to start downloading tunes. Now thanks to podcasting - the latest craze in digital broadcasting - there's more.

Podcasting is a way of transmitting audio broadcasts so that they can be downloaded to digital audio players. It works in a similar way to the latest breed of desktop aggregators. But while these allow you to select and read text documents at a time that suits you, podcasting allows you to collect audio broadcasts to listen to later. In this respect it's a bit like TV services such as Sky+.

While podcasting is still in its infancy, broadcasters such as the BBC and Virgin Radio are beginning to pick up on it. Over the next few pages we explain in detail what the technology is, where it comes from and how it's being used. We also provide a guide to receiving broadcasts on your MP3 player, tips on how to find the best content and everything you need to know to air your own content.

A podcast is a digital audio broadcast designed to be shared via the internet. While commercial broadcasters have realised its value, anyone with a modicum of technical know-how can create a podcast.



Podcasts are generally free and provided in MP3 format, so you can listen to a them on virtually any digital audio player.

What's really interesting about this technology is that by using a simple piece of software, you can arrange for the broadcasts you want to hear to be downloaded automatically to your player. This way you are no longer restricted by the schedule - you listen to what you want, when you want.

The technology behind podcasting is RSS (really simple syndication). This is an XML-based format for content distribution, normally used for news feeds. By using the enclosure element within RSS, you can attach audio files to these feeds.

An RSS aggregator will allow you to grab any audio feeds you've subscribed to. Content will then be automatically downloaded and you can listen at your leisure. ☒

## Report for the BBC

Podcasting allows everyone to add their spoken words to the web - but it doesn't have to stop there. The BBC and mobile phone operator 3 have, for example, joined forces to allow people to add video messages to the web via a 3G handset. The Beeb used this technology in its general election coverage, allowing people to post their thoughts using videomail.

The aim was to engage the elusive 18- to 24-year-old audience and elicit their opinions. BBC News 24 included a 20-strong voter panel, who used 3 videomail to update the website with their video comments during the election. Their blogs also formed part of the campaign coverage - some even ended up on television.

Auntie is now allowing all 3G users to blog video to its site. These comments may

then be used on BBCi or News 24. For more details go to [http://news.bbc.co.uk/1/hi/talking\\_point/2780295.stm](http://news.bbc.co.uk/1/hi/talking_point/2780295.stm), or email videos and pics to [yourpics@bbc.co.uk](mailto:yourpics@bbc.co.uk).



BBCi now encourages users to post their opinions in the form of 3G videoblogs

## Download devices

Now you know how the process works, the next step is to get podcast content onto your player. The first software to facilitate this was written in AppleScript. It allowed RSS audio feeds to be downloaded onto iPods - hence the name podcasting. The creator of this iPodder software, Adam Curry, put his code online to allow developers to adapt and improve it.

As a consequence the application can now be used on PCs, Macs and even Linux clients, as well as smartphones and PDAs. You can download the entire range of iPodder flavours from [www.ipodder.org](http://www.ipodder.org).

For more information about how to use this software see our guide, over the page. One of the key benefits of this tool is that it comes with a directory of podcasts to which you can automatically subscribe, rather than having to search out what you want. There is, however, little information about what these broadcasts contain, so you'll still have to do some research.

For PC users, Doppler ([www.dopplerradio.net](http://www.dopplerradio.net)), may be a better choice. It's free and it syncs with Windows Media Player, allowing you to download podcasts to players other than the iPod. Doppler isn't the only player to allow you to do this, but alternatives such as FeedDemon ([www.bradsoft.com/feeddemon/index.asp](http://www.bradsoft.com/feeddemon/index.asp)) are not free. A good place to look for podcast download software is [www.podcastalley.com](http://www.podcastalley.com).

### REDEFINING PODCASTING

# dopplerradio

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Podlight rated as Magazine's best of 2003 in filtering software

**Easy-to-use Monitor**  
Monitor network transactions, IP, email, packets, traffic. Free try

[Get it here](#)

#### Wish List

May 1st, 2005 by Cley

We just added a wish list to Dopplerradio.net.

Doppler is free software, but we do appreciate every donation. The amount of money out of the donations and Google AdSense, isn't even enough to pay for the hosting and the bandwidth.

Not everyone likes to give money, so that's why we added our wishlist. We've added an Amazon UK wish list. If you're satisfied with a product (they're cool!) or a service, please add it to our wishlist.

[Make a Donation](#)

#### Areas

About Doppler  
Recommended  
FAQ  
T-Shirt  
Team  
Forum

#### Downloads

Doppler 2.0 0.7

#### Images

[Get Doppler](#)

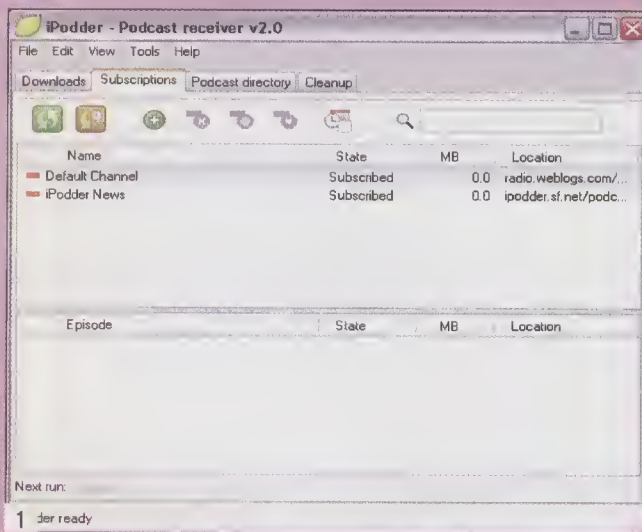
#### Wish Lists

A visit to Podcast Alley provides tips on all things podcasting

Doppler allows PC users to sync podcasts with Windows Media Player

## Add podcasts to your MP3 player

Now you know what podcasting is, you'll probably want to give it a try. All you need is a PC, some podcast software such as Doppler ([www.dopplerradio.net](http://www.dopplerradio.net)) or iPodder ([www.ipodder.org](http://www.ipodder.org)), and media software such as Windows Media Player or iTunes. Here, we've used iPodder and Windows Media Player.



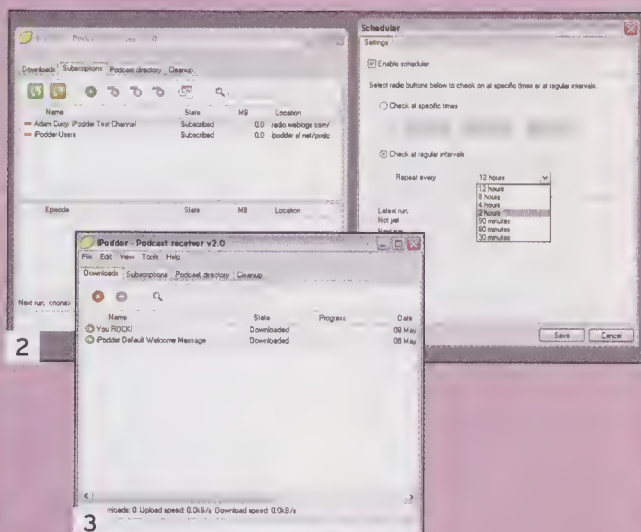
**1** When you first open iPodder, it presents you with the Subscriptions window, where all the feeds to which you subscribe are displayed. Initially there are only two podcasts in this window: iPodder News and the Default Channel, which is a welcome message. You can find out the URL for any feed by clicking on it - this takes you to its site of origin

**2** In the toolbar along the top of the Subscriptions window there are several icons. Working from left to right, these allow you to check for new casts, add a feed, remove or view a selected

podcast and set a schedule. Also with the Schedule button you can browse for new content at user-defined intervals. To do so, click on Schedule, check the Enable Scheduler box and then select 'Check at specific time' or 'Check at regular intervals'

**3** Clicking on the 'Check for new podcasts' button automatically downloads any new content in your subscriptions. This will take you to the Download window, where you will see the podcasts you've just grabbed

**4** Adding feeds is simple. If you know the URL,



click on the 'Add new feed button' and enter the address. It should then appear in the Subscriptions window. Now you can simply click on 'Check for new podcasts' to download content as it's added.

If you just want to check everything is working, select a subscription and click on 'Check selected feed'

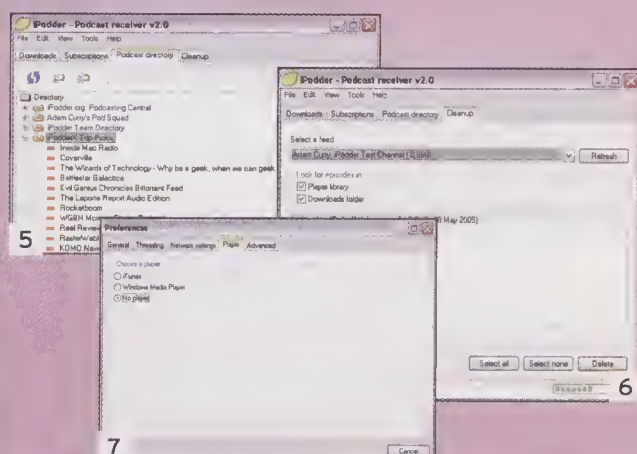
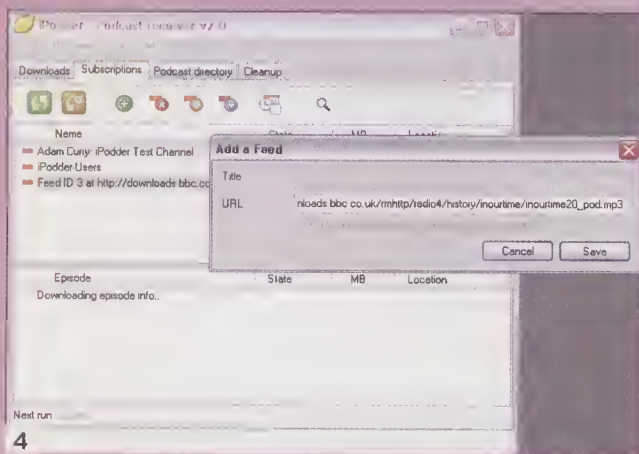
**5** Another way to add feeds is to hit the Podcast Directory tab. Here you'll see a list of selected broadcasts.

To add a feed from the directory, click on the one you want. Its URL will then appear in the 'Add a feed' window. Then click on the Save button

and it will automatically appear under Subscriptions. The final window is Cleanup. Here you can select episodes you've listened to and wish to delete

**6** To move downloaded feeds to an audio player, go to File, Preferences, then click on the Player tab. To export files to Windows Media Player, select this option

**7** Once you have selected WMP as your default player, anything you download will automatically be added to your PC's library. It will then be added to your MP3 player when you sync the device





## For your listening pleasure

Podcasting means anyone can broadcast on the internet. As well as online offerings from famous names you can enjoy audio blogging, where everyday folk publish their thoughts. Such podcasts can be rather shoddy, but this only adds to the charm of the online audio revolution. Here's *PC Advisor's* guide to the best sounds on the web.

### The professionals

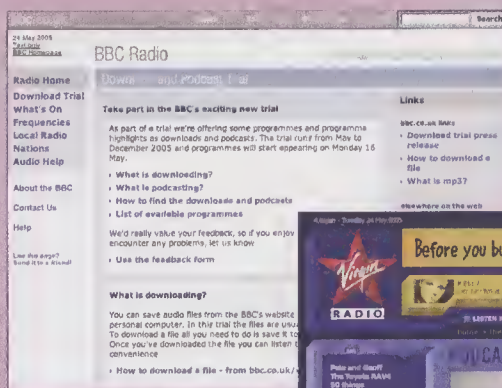
By far the most popular use of podcast software is to record content from well-known broadcasters to listen to at your leisure. Plenty of famous DJs provide content in the RSS format ready for download. These include:

The **BBC Radio 4** has released a podcast of its history show *In Our Times*. You can also get Radio Five Live's popular *Fighting Talk* programme as well as film reviews, political interviews and sports chat. Go to [www.bbc.co.uk/radio/download](http://www.bbc.co.uk/radio/download) trial **Virgin Radio** Meanwhile, Virgin offers a daily podcast featuring the best of *The Breakfast Show* with Pete and Geoff. For more information visit [www.virginradio.co.uk/thestation/podcasts](http://www.virginradio.co.uk/thestation/podcasts) **Podshows** At first glance [www.podshows.com](http://www.podshows.com) appears to be the aural resting home for old DJs, featuring as it does the likes of Gary Davis, Terry Christian and Henry Kelly - but no Smashie and Nicey. It includes loads of professionally produced talk, music and news podcasts. You have to pay for some of the shows, though, such as the Official Top 40

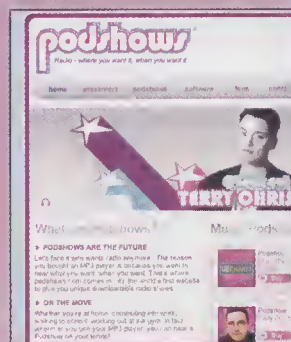
### Hidden treasures

Of course, it's not all about playing safe with big-name DJs. If you want to explore the weird and (on occasion) wonderful world of audioblogging, here are some useful guides:

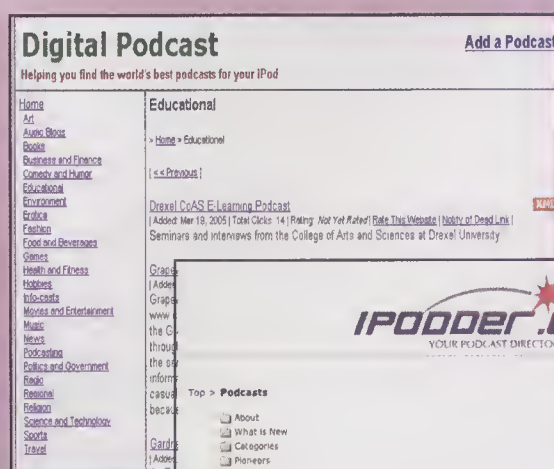
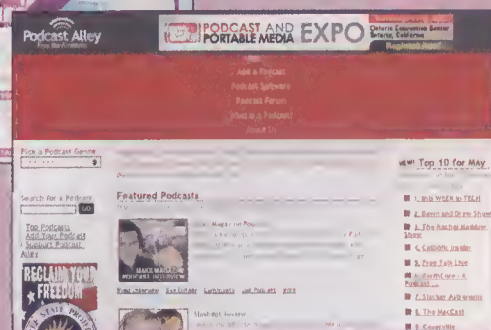
**Podcast Alley** This site - [www.podcastalley.com](http://www.podcastalley.com) - is another good source for lists of broadcasts, along with a description of what to expect. There's a forum where users provide links to feeds. This is a US site, so much of the content has an American bias **Digital Podcast** Another use for podcasting is education. It's an ideal way to transmit lectures to students, who can listen at a convenient time or when they need to revise. For a list of educational podcasts visit [www.digitalpodcast.com](http://www.digitalpodcast.com) and click on the Education section. The entries include learning Spanish and a guide to holistic pet care. Another US site, then... **Music** is another favourite. It's a great way for bands to put out tracks to listeners for very little cost. Have a look under **Music** at **Digital Podcast**, there's plenty to choose from **iPodder** The iPodder software itself comes with a great directory of podcasts. Visit [www.ipodder.org](http://www.ipodder.org) and you can view a regularly updated list of feeds



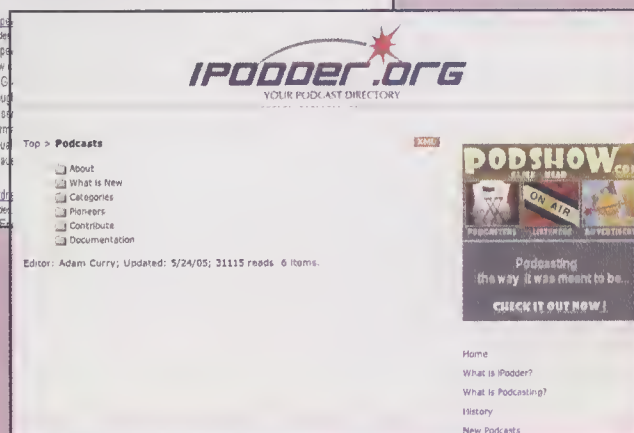
Broadcasters such as the BBC and Virgin Radio have been quick off the mark, podcasting popular shows...



...but there is some excellent internet-only audio out there, from sources such as Podshows and Podcast Alley

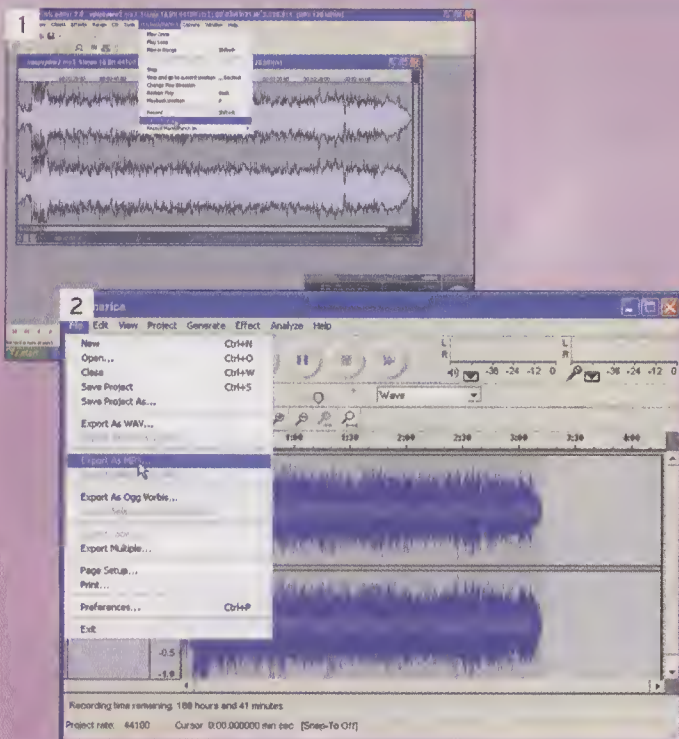


Whatever your taste, find something that suits at iPodder or Digital Podcast



## Creating your audio

First you need some audio. Get some material and an application that can record it. We've used Fasttrak's MP3 Centurion, but you could easily use Audacity (on our cover disc). You'll also need a decent microphone attached to your PC.

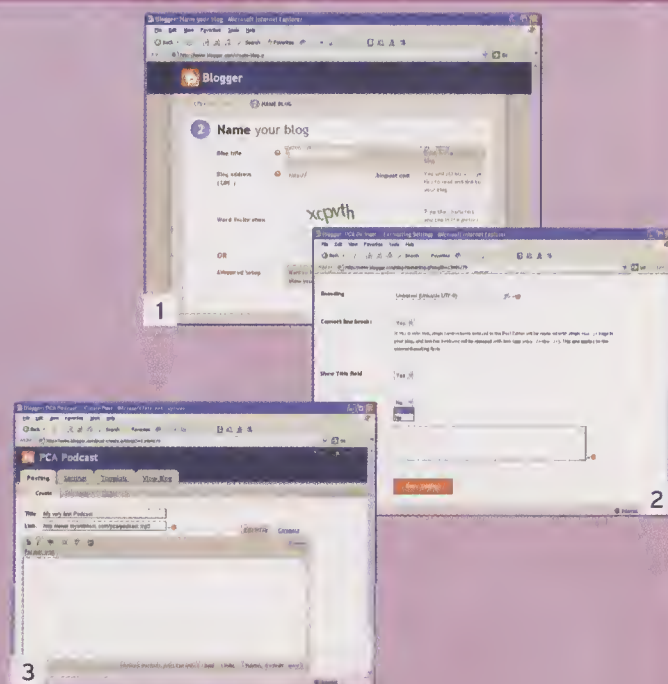


- 1 Set up your software to record from your microphone. When you're ready, hit the Record button. Save and playback your recording. Redo things as necessary
- 2 Save your spoken and music files and, if you choose, edit them together to create a cohesive narrative. When you're ready, export the file as an MP3. If you're using Audacity, it will ask where you've stored the Lame add-on
- 3 Once you've made your MP3 you'll need somewhere to host it on the internet. Most ISPs provide enough space to store at least a half hour podcast. Upload the podcast to your webspace and make a note of where it is stored (for example: [www.mywebspace.com/pca/podcast.mp3](http://www.mywebspace.com/pca/podcast.mp3))

## Building a blog for your podcast

The easiest way to get your podcast up and running is to use Blogger's free service. Follow our steps and you'll be publishing to the world in no time at all.

- 1 Get an account at [www.blogger.com](http://www.blogger.com) if you don't already have one. Once you're signed in click Create a Blog. The simplest option is to build your blog on blogspot.com, Blogger's free hosting service. Your weblog will be up and running in minutes
- 2 Once your blog has been created, open it and then click on the Settings tab next to Posting. Choose the Formatting option and near the bottom find the entry marked Show Link Field. Change this to Yes and click Save Settings
- 3 You're now ready to create your first post. Click the Posting tab and enter the name of your podcast in the Title field and the location of the podcast MP3 file you created above ([www.mywebhost.com/pca/podcast.mp3](http://www.mywebhost.com/pca/podcast.mp3)). If everything looks right, click the Publish Post button

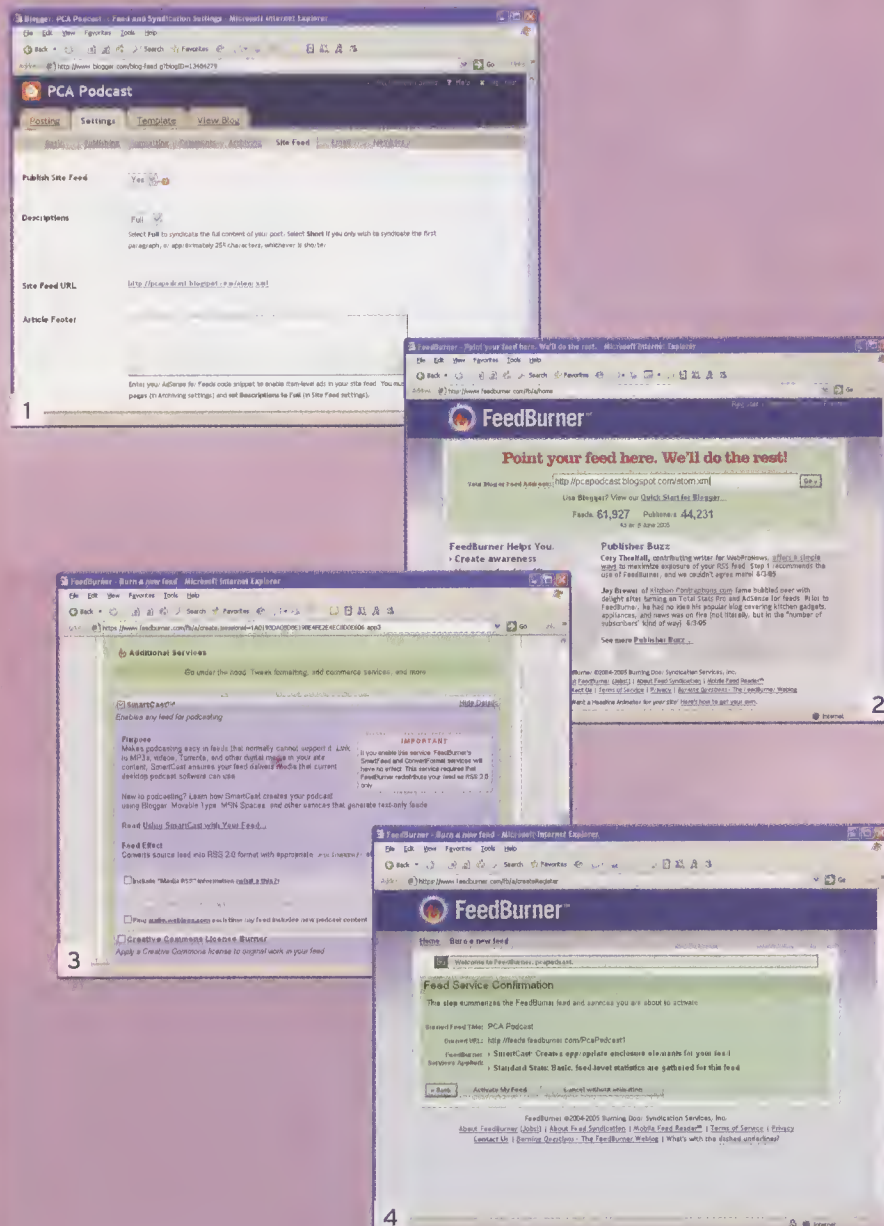




## Putting it all together

It's now time to link the blog you created and your audio together to form a podcast feed.

- 1 By default Blogger will create a site feed for your blog, which is compatible with a newsreader application. To find the location of your feed, click the Settings tab, then Site Feed. Scroll down to the Site Feed URL and copy its location, i.e. <http://pcapodcast.blogspot.com/atom.xml>
- 2 While this feed is suitable for a text-based newsreader application, we need to make it compatible with a podcast application. Go to [www.feedburner.com](http://www.feedburner.com) and enter your feed address into the box at the top and click Go
- 3 On the next screen, scroll down to Additional Services and tick the box for SmartCast. This ensures that your feed will be formatted correctly for podcast applications. Click the next button, choose a username and password and click next to save your settings
- 4 Now see whether you can add your broadcast to an aggregator for people to download to MP3 players. Head to Feedster ([www.feedster.com](http://www.feedster.com)) to give it a try



## Recording tips

Terry Wogan might make it sound it easy, but you'll soon find it ain't - unless you follow our guide to radio heaven...

- 1 Practise what you want to say, have crib notes to refer to and a nice quiet room in which to record
- 2 You're not broadcasting live, so don't be afraid to rerecord your commentary as often as you like
- 3 Lay down a single track at a time. Software such as Audacity (and almost any commercial music editor) can combine your speech with a background track of music, once you're happy with both
- 4 Be aware of copyright issues. To avoid paying royalties, head to the Creative Commons Search pages and download tracks that have a more flexible approach to licensing
- 5 If one-way conversations are too staccato, try striking up an online voice chat with a friend via your instant messaging client. Many audio capture programs can now record such conversations and a lively debate may make better listening
- 6 Playback your recording using a pair of headphones - speakers can produce nasty feedback
- 7 Enter ID3 tag information to each MP3 file you create so that when it's downloaded to a portable player, your show is easy to find



## GENERAL

### NOT OUR FAULT!

**Q** When I try to run the *PC Advisor* May 05 issue cover disc, I receive the error message: 'exception econvertererror in module browser.exe at 00004652. '0.0' is not a valid floating point value'. Can you help? *Stefano Luci*

I can't find any program called browser.exe on that CD, Stefano, so I'm wondering if it's some other magazine's cover disc that's at fault. But I'll try to help anyway.

From your email address I'm guessing that you're in Italy, so your PC is probably set to use a comma as a decimal separator. The CD browser program probably contains a floating-point value of zero that has been hard-coded to use the British standard of a dot for a decimal point.

If the program has been written using Borland Delphi or Borland C++, then the error you received would appear when the software tries to convert 0.0 to a binary number using your Italian regional settings. The error can only be fixed by the program's developer, but if you want, you could work around it by changing the regional settings in Control Panel to use a dot instead of a comma.

By the way, as a general point of information, if you do experience a problem with the cover disc (by which I mean our CD) call 0870 739 7630.

### SPONTANEOUS SHUTDOWN

**Q** My Acer TravelMate laptop has recently started shutting down automatically during a viruscheck or, indeed, any graphics-intensive program.

'exception econvertererror in module browser.exe at 00004652. '0.0' is not a valid floating point value

I eventually managed to complete a full virus scan, and found nothing wrong. Any ideas? *Tania Hart*

You've checked for viruses, but you should also check for spyware. If that's clear - and it's impractical to diagnose a fault like this by email - I guess that it could be overheating.

Check that the input and output grilles for the airflow aren't blocked by dust. If they appear to be, open the machine and give it a cleanout, or have an engineer do it for you.

If your laptop is keeping its cool, then I suspect faulty memory. You can

download a good free memory tester from [www.memtest86.com](http://www.memtest86.com) or load it up from this month's cover disc.

### BAD ADVICE?

**Q** I'm surprised to find *PC Advisor* recommending the Maxtor One Touch II external drive in the article *Better Backups* (May 05). I bought one so that I could back up my system before installing Service Pack 2.

After installation, the FireWire drive disappeared and I have not been able to use it since. It won't work on USB either. The Maxtor

Looking for help  
with your PC problems,  
and want to speak to someone direct?

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Since this service began six years ago, thousands of *PC Advisor* readers have called our team of experts for instant solutions to their PC problems. No question - whether it's software- or hardware-based - is too simple or too complex. Our experts are here to help whatever your dilemma, and they're just a phone call away.

### Hassle-free service

The Hotline costs £1.50 per minute. You'll be charged for the service on your telephone bill.



## Index

178 General 180 Windows 184 Internet 186 Security 188 Applications 188 Pass it on

website directs me to a Microsoft Knowledgebase article that acknowledges the problem, but the SP2 hotfix mentioned in the article failed to resolve it.

Uninstalling SP2 didn't help either. Since the drive is now unusable, Maxtor advised me to return it to the retailer for a refund but I'm unwilling to do this because it contains personal information. Is there anything I can do to help? *Jahn Crane Dobson*

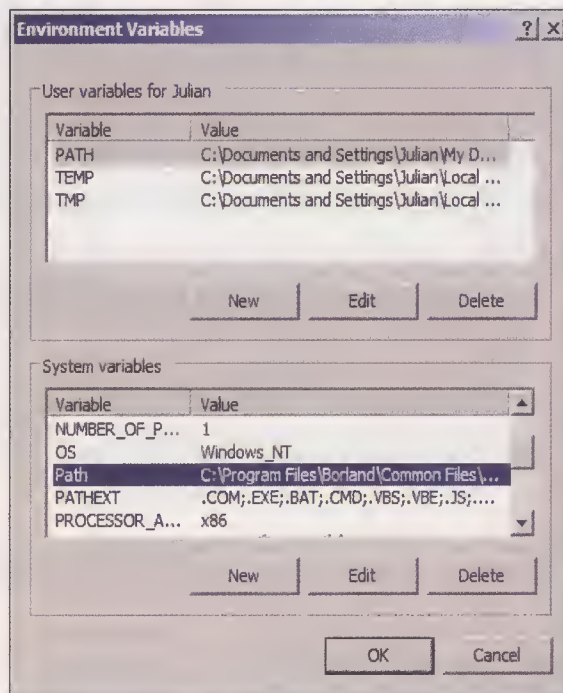
I think it's a little unfair to say that we should not have recommended the Maxtor OneTouch drive. The problem only affects some computers using a particular FireWire chipset, and Microsoft has already produced a hotfix that is supposed to resolve the problem. The fact that the drive won't work on USB, nor after you uninstalled the SP2 upgrade, suggests that there may actually be some other reason for the failure, such as your OneTouch drive or its power supply developing a fault.

If the drive isn't faulty, you should be able to install it on a friend's computer, which would enable you to delete your files from the disk before taking it back to the shop.

## SAFE BACKUP

**Q** As a result of your article *Better Backups* (May 05) I now have a Maxtor OneTouch drive plus Norton Ghost. I feel my data is much more secure.

However, the article didn't give much information about security and the use of passwords. I have used a password for Norton Ghost, but what about Retrospect Express backups? Could my data be accessed if the Maxtor drive was stolen? *Dennis Lamb*



Yes, it could. The Norton Ghost password will protect your image files from casual access, but I'm told that the passwords themselves are quite easy to recover.

You can password-protect Retrospect Express backups too, but the data itself is not encrypted by default and could be read using another utility. If you also use compression, then the data will not be easily readable by anyone who does not have Retrospect Express and a copy of the password, because the compressed data looks like gibberish until it is decompressed.

To make unauthorised access even harder, you can also use Retrospect's SimpleCrypt (which you can load up from our cover disc) to encrypt the backup data. However, this will increase the time taken to perform a backup. However if you do this, be

**Make sure the Windows System folder is in the Path environment variable if you want to use XCopy**

warned that there is no back door - if you forget the password the backed-up data will be irretrievably lost.

## NO XCOPY

**Q** I thought the workshop article *Lock down Windows and protect your data* (May 05) was going to be very useful. I created new disk partitions in anticipation, and copied the XCopy batch file as instructed on page 165, but when I try to run it, I receive the message: 'XCopy is not recognised as an external or internal command, operable program or batch file'. The file exists in C:\Windows\system32. Do you have a solution? *Brian Flack*

The only explanation I can think of, Brian, is that C:\Windows\system32 is not in your Path environment string (shown left). Because it usually is, the error isn't something the writer of the article could have anticipated.

Open a command prompt window and type in PATH. If the string that follows 'PATH=' does not contain 'C:\Windows\system32;' then you've found the cause of the problem.

If the path isn't there, then you have two options: either you can change your batch file so that it uses the full path: 'C:\Windows\system32\xcopy.exe' instead of just 'xcopy.exe'; or you can add the path to the environment string.

The latter would be better, since there may be other things that will fail because the path is not correct. To fix it, right-click My Computer and click Properties, select the Advanced tab and click Environment Variables. Under 'System variables' select Path and click Edit, then insert 'C:\Windows\system32;' - without the quotes - at the start of the string.

## Operating hours

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# WINDOWS

## FREEZING WINDOWS

**Q** When I start my computer it appears to freeze with the Welcome screen showing. If I press Ctrl, Alt, Del I am informed that Winstart Commander is not responding. When I click End Task Windows completes loading and appears to run normally. What's gone wrong? *Mansel Fisher*

I can't determine what has gone wrong from your description, Mansel. However, I do know that Winstart Commander is a part of Ultra WinCleaner, a utility product, and not part of Windows.

It's supposed to help you manage the programs that load at startup by letting you create groups of programs to load for different tasks. But it's really an unnecessary complication. As it appears to be interfering with Windows startup - OO instead of speeding it up - my advice is to get rid of it via Add/Remove Programs.

## CAN'T WRITE

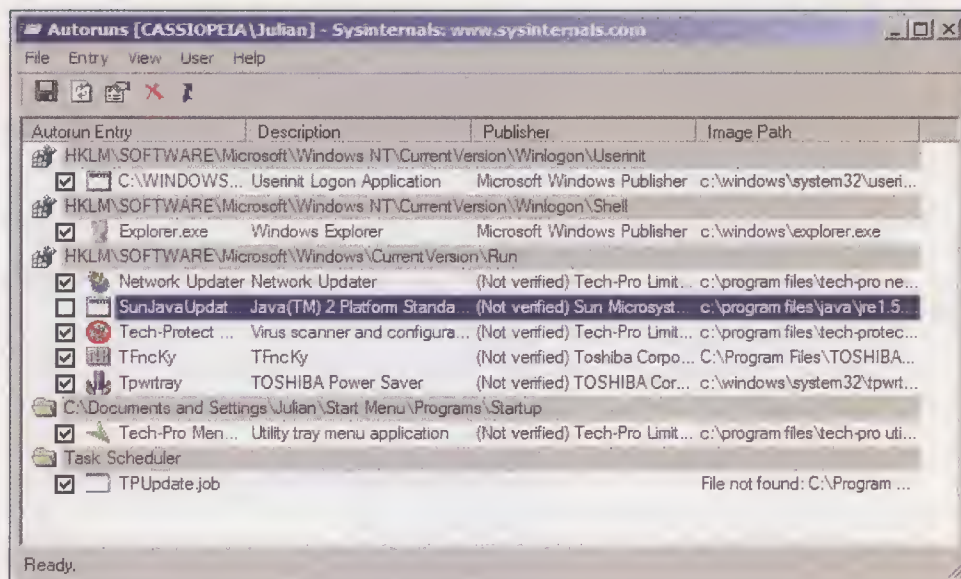
**Q** I'm using Windows XP, but I can't burn files to CD by drag and drop, and Media Player 10.0 doesn't recognise either of my drives as writers. I can write to both drives using Nero, but I'd prefer to use Windows. *Tany Arden*

The most likely explanation is that the Windows CD-burning service may not be running. This is required in order to use the CD-writing capabilities built-in to Windows. Click on Start, Run, type services.msc and press Enter.

In the Services management console, scroll down the list and double-click the 'Imapi CD-Burning COM Service'. Set the Startup type to Automatic, then click on Start if the service is not already running.

## TAKING EXCEPTION

**Q** In the past three weeks my computer, running Windows 98 SE, has started experiencing a problem that seems to be getting worse. Ten minutes or so after switching on, a blue screen



appears with the message: 'A Fatal Exception 06 has occurred at 0000:00000017. The current application will be terminated'. When this occurs, the computer has to be physically switched off. How can I rectify it? *Tany Stubbs*

I really can't be sure what is causing this problem, Tony. This exact error can occur when you press the Caps Lock key, if you have certain Hewlett Packard printers installed. The solution, apparently, is to uninstall and then reinstall the printer drivers.

However, there is also a known problem caused by a recent Microsoft update (KB891711) that results in the same symptoms. This seems a more likely explanation in your case. Microsoft should have released an update to the update by now, so if you install it that should cure the problem.

## TIRESOME MESSAGE

**Q** Whenever I log in to one of the accounts on my laptop I receive a message that 'Setup Is loading installation components'.

This is followed by: 'This machine has later versions of all components to be installed. Setup will now terminate'. How can I prevent this happening? *Annette Quaresima*

I don't know what's causing this, Annette, but whatever it is must be being started automatically every

time you log in. Download Autoruns to manage your startup programs

from www.sysinternals.com or load it up from the cover disc. There's no installer for this utility, so just unzip it to a folder and then run it.

The program will display a list of all the Registry and configuration file entries that cause programs to run when you log in (as shown above). You'll have to use some intuition to determine which entry is causing the problem, but it may be something called setup.exe. Clear the checkbox for the suspect entry. If this solves the problem, run Autoruns again and delete the entry you disabled.

## BLUETOOTH BLUES

**Q** I recently bought an HP Photosmart 2610 three-in-one printer and tried connecting it using a PictBridge device and a Bluetooth dongle, in the hope of using it from my laptop as well. The Bluetooth setup (Add a Bluetooth device) worked, and the printer is recognised by my PC.

However, I can't work out how to print anything. I tried to add the printer using Control Panel, Add Printer, Add Bluetooth printer, but the wizard tells me it doesn't recognise any Bluetooth printers nearby. Any thoughts? *Brian Hay*

There's an alternative way to add a Bluetooth device, Brian. Open Control Panel, Printers and Other Hardware, then click Wireless Link. Select the



LCD

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CRT

Projector

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VP171s, PC Pro,  
April 2005VP171s, PC Zone,  
April 2005VP171s,  
Home Computer Magazine,  
March 2005VP171b,  
Trusted Reviews,  
February 2005

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Bluetooth tab. If the device does not appear in the list, click Add and then follow the onscreen instructions.

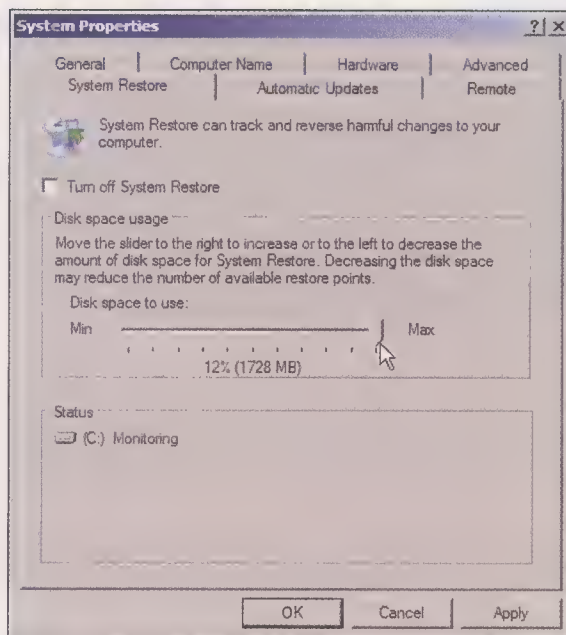
If the device does appear in the list, check its status. If this is 'Last Seen', the device should be usable. If it flickers between Authenticate and Connected, there is communication between the device and the computer. Click Properties, Services and select Drivers for Device, then clear the checkbox beside the device and click ok. Then repeat the process, reselecting the checkbox.

Unfortunately, it seems that getting Bluetooth to work is a fairly hit-and-miss process. Microsoft has a Knowledgebase article called 'How to troubleshoot Bluetooth detection and connectivity problems in Windows XP Service Pack 2', but it's too lengthy to include the advice here. You can read it at <http://support.microsoft.com/kb/883258>.

## NO BACKUP

**Q** I'm running Windows XP Home. My Windows XP handbook describes three methods to back up my data using the operating system's backup software, but none of them works. There's no backup option anywhere. Please help.  
*Gerald Richardson*

The Backup utility is not supported by Microsoft under Windows XP Home, so it is not installed by default. If you have a full copy of Windows XP Home from Microsoft, you can install it from the Windows CD.



**Regulate the amount of space used by System Restore**

Open the CD in Windows Explorer and navigate to the folder \ValueAdd\MSFT\NTBackup. Double-click the file ntbackup.msi and follow the instructions to install Backup.

Most people, however, have a copy of Windows preinstalled by the manufacturer. If they get a CD at all, it is a restore disc that does not contain this folder.

If your computer manufacturer didn't install Backup then as far as we know there is no way to legally obtain it. If you search the internet for 'oem ntbackup' you may find a couple of private sites that have a copy you can download, but be extremely careful if you can't check their authenticity.

## WASTE OF SPACE

**Q** My computer runs Windows XP Home. I have needed to use System Restore so often that it now appears to occupy over 40GB of disk space. Is there any way that I can free up this memory? *John Newman*

The amount of space used by System Restore is determined not so much by how often you use it, as how often you change system settings and add and remove software. I'm very surprised that it's using as much space as you claim unless you have a very large hard disk, because the amount of space used is limited to a percentage of the total disk capacity.

To change the amount of space used, right-click My Computer and select the System Restore tab. You can then vary the maximum space allocation using the slider, as shown left. To clear out all your existing restore points, select the 'Turn off System Restore' checkbox, click ok and restart the PC. You can then turn it back on again. Squeezing the space allocated to System Restore will reduce the period of time you can go back when restoring settings.

## SLOW SHUTDOWN

**Q** My computer, running Windows XP Home, takes a couple of minutes to shut down. It always used to close down almost instantly. Any Ideas? *Paul Ng-a-mann*

There's no specification that says Windows has to shut down in a few seconds, so if it does eventually switch off, you may have to live with it. Services such as firewalls, can take a while to close down.

You might also have a worm or some other malware on the computer, which is busy communicating with the internet. Sweep the computer for all viruses and spyware.

If this doesn't find anything, disconnect it physically from the internet, then disable or uninstall, one at a time, your viruschecker, firewall and any other software you may have that runs in the background. This should determine the cause of the slow shutdowns by elimination.

## Contact us

Do you have a technical problem that needs solving? Our Helpline guru Julian Moss is here to help. Please email your Helpline questions to [pcadvisor\\_letters@idg.com](mailto:pcadvisor_letters@idg.com). To help us sort your messages, please remember to use the word 'Helpline' in the subject header and give your full name. Alternatively, you can post your queries to us at Helpline, PC Advisor, 99 Gray's Inn Road, London WC1X 8TY.

Helpline aims to give you the best assistance possible. But given the limitations of this type of advice, we can't guarantee

that what we say will work and we can't accept responsibility for any damage arising as a result of this advice.

Always back up your system before making any changes, including software installations. If you send supporting data with your query, such as images, printouts or software discs, make sure they are not original copies as we cannot return them.

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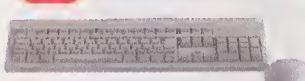
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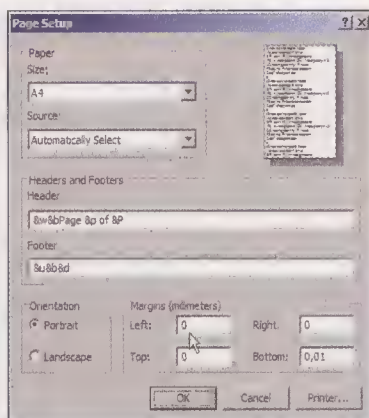
# INTERNET

## LOCKED OUT

**Q** I am unable to change the home page in Internet Explorer. In Control Panel, Internet Options, the 'Home page' box is disabled. If I open Internet Explorer and go to Tools, Internet options I receive the message 'This operation has been cancelled due to restrictions in effect on this computer. Please contact your system administrator'. Please advise. *Alon Woddell*

There are two likely possibilities here, Alan. If your home page has changed and is not what you want it to be, some spyware has changed it and then locked it. Run an antispyware tool such as Spybot Search & Destroy (on the cover disc) or Microsoft AntiSpyware to fix it.

If your home page hasn't changed, but you want to change it, you may have enabled the Immunize feature of Spybot, or a similar feature in another product. If you're using Spybot, open it in Advanced mode, select Tools, IE Tweaks (as shown above), then disable



'Lock IE start page against user changes' and 'Lock IE control panel against opening from within IE'.

## SLOW LOADER

**Q** Outlook Express now takes 45 seconds to start. It used to start immediately, straight to the Inbox. I'm running Windows 98. What's happened? *Ken McLaren*

The usual cause of this problem is that the file imagehlp.dll in C:\Windows\system is missing or incorrect. To rectify the problem, use System File Checker (click Start, Run, type SFC and press Enter) to restore

If Internet Explorer cuts off part of a web page, try setting the margins to zero

the correct version. If this doesn't make any difference, try restoring psbase.dll, pstorec.dll, pstorer.dll and pstores.exe using the same method.

## OFF THE MARGIN

**Q** When I view a web page or a picture in Internet Explorer it fits on the screen, but when I print it, it is often cut off at the right margin. Can you suggest a solution? *Gordon Wallwork*

This has been a common problem for years and I am amazed that Microsoft still hasn't solved it. Microsoft's Knowledgebase article states that this behaviour is by design. One solution would be to use the Firefox browser instead ([www.mozilla.org/products/firefox](http://www.mozilla.org/products/firefox)), as this has been designed to print web pages as you expect them to be.

Microsoft expects you to try the following workarounds whenever you want to print something... Click on File, Page Setup and set the left and right margins to 0 (as shown above). Click ok and then print the page again. If this doesn't work, throw the wasted pages in the bin, click on File, Page Setup again and change the Orientation setting to Landscape.

## FIREFOX TEST

**Q** I'd like to try Firefox. Do I first have to uninstall Internet Explorer? If I don't like Firefox, how do I get Internet Explorer back? *Keith Norton*

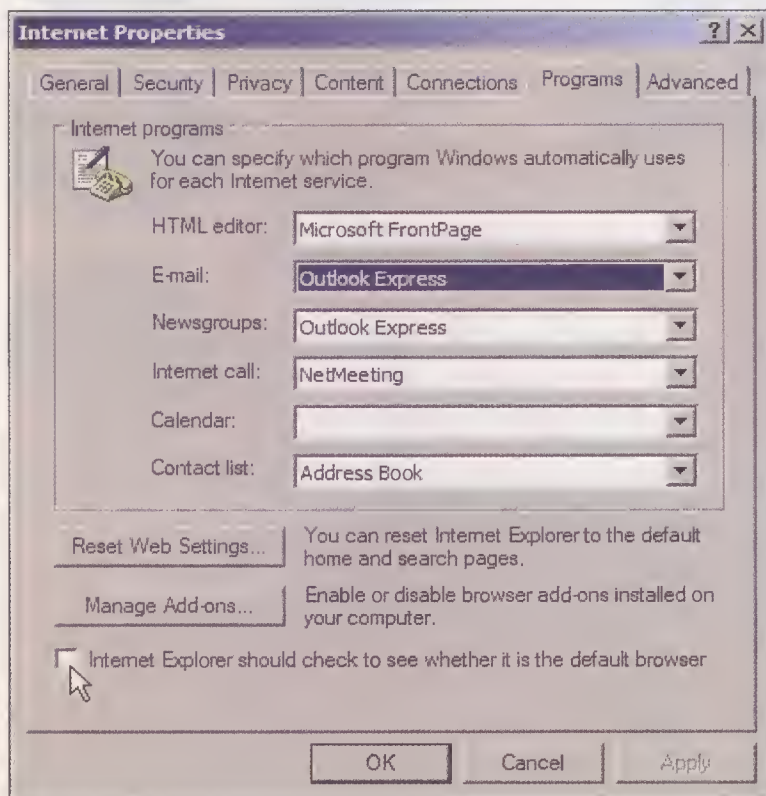
You don't need to uninstall Internet Explorer to use Firefox, Keith. You can choose to keep IE as your default browser and run Firefox from its shortcut, or make Firefox your default and start IE from its shortcut.

If you make Firefox the default and then decide to change back, open Control Panel, Internet Options, select Programs and tick 'Internet Explorer should check to see whether it is the default browser' as shown below.

## RED CROSS ASSISTANCE

**Q** I'm using AOL 9.0. When I receive emails, the pictures aren't shown, they just appear as a box with a red X in the corner. How do I reveal them? *Philip Atkin*

If you want Internet Explorer to be your default browser, tick this box





## TIP Use all your memory in Windows 98/Me

If your computer running Windows 98 or Me doesn't recognise all your system memory, it may be that a configuration setting is preventing Windows from using it.

Open the System Configuration Editor (click Start, Run, type Sysedit and press Enter) and select the file system.ini. Under [386Enh] look for an entry 'MaxPhysPage=nnnnn'. If present, the value nnnnn should be greater or equal to the amount of system memory (in bytes) divided by 4,096, expressed as a hexadecimal number.

You can use the Windows calculator in scientific mode to calculate the value to use. Enter the amount of memory in megabytes, multiply by 1,048,576 to get the amount in bytes, divide by 4,096, then click the Hex button to see the answer in hexadecimal. For example, if your computer has 512MB of RAM then the entry under [386Enh] should read: MaxPhysPage=20000.

You can use this value to restrict the amount of memory Windows uses to less than your computer has, if you want.

To avoid the need for calculations (and reduce the risk of errors) a Microsoft Knowledgebase article contains a list of values for common amounts of RAM. You can read it online at <http://support.microsoft.com/?kbid=181862>.

The red Xs appear because the images are stored on a web server somewhere, and AOL 9.0 has temporarily blocked access to them. This is done for a good reason. When the images are retrieved from the web server, a special code can be used to allow the server to count the number of times a copy of the message has been read, or even to record the email address it was sent to.

This mechanism allows spammers to earn money according to how many of the messages they send are read. It can also be used to retrieve image files that exploit security flaws to install viruses or spyware on your PC.

It's up to you to decide if the email is from a legitimate source. If you think it is, and you want to see the images, click the 'Show images and enable links' option at the top right of the message window.

You will see a square containing a red X. Double-click this and the message will be redisplayed complete with all the images.

### BROKEN WEB

**Q** I have no problem when opening Internet Explorer and then navigating to Google, my home page. From there I can go to one more site, but when I try to investigate further I receive a 'Page not found' error. Can you advise? *Ken Gregory*

There's no logical explanation I can think of for these symptoms, so I suspect spyware. Install and run a couple of good spyware scanners.

### STALE COOKIES

**Q** I installed Internet Cleanup from an old cover disc, and it cleaned up most of my files. However I have one file, [www.dailymail.co.uk](http://www.dailymail.co.uk), which is dated 01/01/1601 and has no expiry date. It is repeated 9,537 times, and when I try to delete it the program hangs. How can I get rid of these files? *Anthony Webster*

Are you sure the program is hanging? Deleting that number of files could take a while. However, it's possible there's something wrong with the files and this is causing the hang.

The files are cookies, so delete them from within Internet Explorer. From Tools click Internet Options, select the General tab and click Delete Cookies, as shown right.

## SECURITY

### BEST ANTIVIRUS?

**Q** I already have a firewall so I only really need a standalone antivirus application. I am baffled by reviews, as one site rated

Panda last, while another put it in the top three. Which antivirus software would you say is the best at detecting viruses, worms and so on? I'm not so concerned about ease of use or the user interface. *Mark Zhiyao*

Reviews of security products are often subjective because no individuals and very few organisations possess the materials and resources needed to test them that extensively.

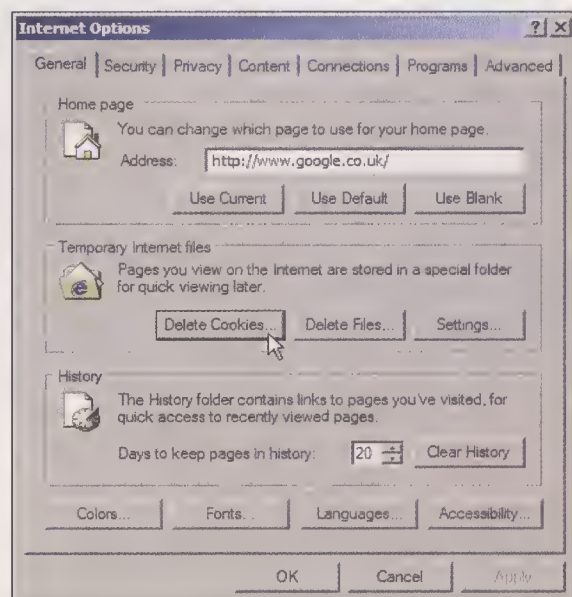
You'll find objective tests based on detection ability at Virus Bulletin ([www.virusbtn.com/vb100](http://www.virusbtn.com/vb100)) and ICSC Labs ([www.icsalabs.com/html/communities/antivirus/certifiedproducts.shtml](http://www.icsalabs.com/html/communities/antivirus/certifiedproducts.shtml)).

However these organisations issue awards to all products that meet their test criteria, and you need to be a subscriber to see individual test rankings and get a clearer picture.

I find that the alt.comp.antivirus newsgroup is one place where a lot of virus-savvy people express their opinions. The products most frequently recommended there are Kaspersky Anti-Virus ([www.kaspersky.co.uk](http://www.kaspersky.co.uk)) and NOD32 by Eset ([www.nod32uk.com](http://www.nod32uk.com)).

Finally, for an impartial and in-depth round-up of antispyware software, get hold of the June issue of *PC Advisor* (you can call 01795 414 836 to order one).

Throw out stale cookies using Internet Explorer



## I-SEARCH

**Q** I am unable to remove a virus called I-Search. The file is C:\Windows\isrvs\ffisearch.exe. What should I do? *Salvatore Ercolano*

I-Search is actually spyware masquerading as a toolbar. First, download and run HijackThis from <http://tomcoyote.com/hjt> or the cover disc. You may find a lot of entries starting '01 - Hosts:'. Tick all except the entry named 'localhost' and click 'Fix checked'. Scan again.

Now go carefully through the listing looking for entries that contain 'C:\Windows\isrvs'. You should find the file you mentioned and probably several others. Tick all of them.

Scan the listing again, looking for anything that contains 'isearch'. Tick these as well, and then click 'Fix checked'. This should remove it.

## PASS THE PORT

**Q** I'm using Norton Personal Firewall 2004 on Windows XP Home SP2. Norton's own security check claims I am vulnerable to attack as I have ICMP Ping, SSH (22) and HTTP (80) ports open. Neither Sygate nor the Shields Up security checker find anything wrong, but I'm concerned that Symantec does when I'm using its product. *Jaan Smith*

I'm unimpressed with Symantec's security check, which requires Internet Explorer and ActiveX - both a major cause of security problems - in order to work. I've always found Shields Up ([www.grc.com](http://www.grc.com) or on the cover disc) to be reliable, and Sygate's scan (<http://scan.sygate.com>) doesn't rely on your browser. So you probably have nothing to worry about.

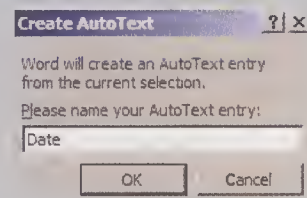
If you suppose that Symantec is right and the others are wrong, then the Ping port being open is really nothing to be concerned about, as it needs to be open for many online games to work. The open SSH and HTTP ports could indicate the presence of spyware on your system, so I would advise scanning with a couple of good antispyware products.

You should, of course, check your Norton Personal Firewall settings to

## TIP

### Insert the date in a Word document using AutoText

1. Position the cursor on a blank line and click on Insert, Date and Time. Select the format you want, click 'Update Automatically' and click ok. Select the date that has been inserted and press Ctrl, F9. This will display the macro code that creates the date value.
2. Ensure that the code is still selected, then click on Insert, AutoText, New. Type the word 'Date' in the 'Create AutoText' dialog box, as shown right, then click ok.
3. To use the AutoText entry you created, just type 'date' and then press F3.



ensure that these ports have not been opened. Alternatively, you could reset the firewall to its default settings. To do this, open Personal Firewall and select the Programs tab.

Ensure that 'Turn on Automatic Program Control' is selected. Click in the Manual Program Control list and press Ctrl, A to select all the rules, then click Remove.

Click Yes to confirm the action, then click ok. Finally, run a Program Scan to recreate the program rules list, and you're done.

## DEAD CENTRE

**Q** I had some virus problems with my notebook so I installed McAfee Security Centre from the web. Since then my PC has been better, but it does a couple of strange things. In the System Tray, the red M icon appears, but disappears when I move the mouse over it.

I have tried to remove the software via the Control Panel but nothing happens. I am afraid there's something not quite right with this product. Any ideas? *Richard Waterworth*

If a System Tray icon disappears when you move the mouse over it, this means that the program that created the icon has crashed. So you're right to think that all is not well with this software.

However, it's not possible for me to tell from that what is wrong with it. I should try reinstalling it as a first step. If that doesn't solve the problem, try the McAfee help forums at <http://forums.mcafeehelp.com/index.php>. You can ask for help there, and you

will also find instructions on how to remove Security Centre manually if Add/Remove Programs doesn't work.

## PERSISTENT CONNECTION

**Q** Ever since I uninstalled McAfee Personal Firewall Plus 5.0 from your cover CD, whenever I log on, 200549181358\_mcinfor.exe immediately tries to connect to the internet. I found the file and deleted it completely but the same file still keeps trying to connect. Can you help me get rid of it? *Benjamin Tang*

Would you trust your security to software written by a company that can't even make an uninstaller that works? This seems to be a common problem, Benjamin. Although you think you've deleted the file, you obviously couldn't have done, or it wouldn't be still trying to connect to the internet. I expect that Windows wouldn't allow the file to be deleted because it was in use.

Start Windows in Safe mode, then delete the file. Alternatively, press Ctrl, Alt, Del, find the process in the list and terminate it, then delete it.

## LAMEWEBPEST

**Q** I'm being bothered by a spyware [www.coolwebsearch](http://www.coolwebsearch.com) which seems to hijack my home page. Spybot doesn't work. Can you help please? *Steve Bradbury*

Sure. Try CWShredder (from [www.intermute.com/spysubtract/cwshredder\\_download.html](http://www.intermute.com/spysubtract/cwshredder_download.html) or the cover disc). It's a dedicated removal tool for CoolWebSearch its variants, so should eliminate this nuisance.



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## APPLICATIONS

### RIP OFF

**Q** I have bought a Sony DVD DCR-DVD201E Handycam. I thought it would be easy to take the DVD out of the camcorder to view the video on a PC and edit it, but the files on the disc are VOB format and the editing software can't read them. Can you help, because Sony can't! *William Alden*

It seems you aren't the only one to find this, William. The solution seems to be to copy the VOB files to your hard disk and then use TMPGEnc DVD Author (available from [www.pegasys-inc.com/en/product/tda.html](http://www.pegasys-inc.com/en/product/tda.html) or the cover disc) to extract the video in Mpeg format. It should be possible to open these files in most editors.

There will be some loss of quality when you edit the files because lossy compression is used on the DVD. Further losses will be incurred when you save the edited video, but this is unavoidable. Video editing is a complex subject, so I suggest that you join the forums at [www.videohelp.com](http://www.videohelp.com), which are a mine of information.

### VIDEO TRANSFER, PART I

**Q** My family and I are thinking of buying a combined VCR and DVD recorder as a way of preserving our old home videos. However, we'd also like to edit some of the footage.

So, can we record to a DVD, then load the file on to the computer's hard drive and use XP's Movie Maker software to edit it and re-record the results on to another DVD? *Emma Curzon*

You could do this in principle, although not with XP's Movie Maker, because, as is the case with many other video-editing programs - see my answer to the previous question - it can't open the files on the DVD directly. And you will lose some of the picture quality if you try to do this.

It'd be a better idea to use a video capture card and save the resulting file as an uncompressed AVI prior to editing it. It'll only get compressed once when you burn the final DVD.

### VIDEO TRANSFER, PART II

**Q** I have a Sony RDR-HX900 multi-region DVD-recorder and have saved several films and

concerts, all over two hours long, on to the hard drive. I would now like to transfer them to dual-layer discs, but the RDR-HX900 doesn't support this format.

Soon, I will be buying a PC with a dual-layer burner. Is there any way that I can transfer the material from the RDR-HX900 hard drive on to the new system's hard drive so I can then burn them to dual-layer discs? *Kenneth Ali*

I don't know the format used to store these videos on the Sony's hard drive. It's probably an IDE model, so it would be possible to take the hard drive out of the DVD recorder and temporarily install it in the PC as a slave - that's if you weren't concerned about invalidating the warranty, of course.

If the drive appears to have a file system, you should see a number of files representing your recordings. However, it's anyone's guess what format these are in and whether it's one that your PC software will be able to understand. It could easily be the same format used to store the data on a DVD, in which case you would have gone to a lot of trouble just to avoid some DVD burning.

## PASS IT ON Reader tips

### Password revealed

"In your reply to Paul Pique about his email password in Thunderbird," writes Dennis Gray, "you advised using a password-recovery program. But in Thunderbird all he needs to do is go to Tools, Options, and in Advanced Settings there is a Password Manager that can show stored passwords," (as shown below). I think that Paul still needed the recovery program to view his Outlook Express password so he could compare it with the one entered in Thunderbird, but thanks for pointing out this useful tool, Dennis.

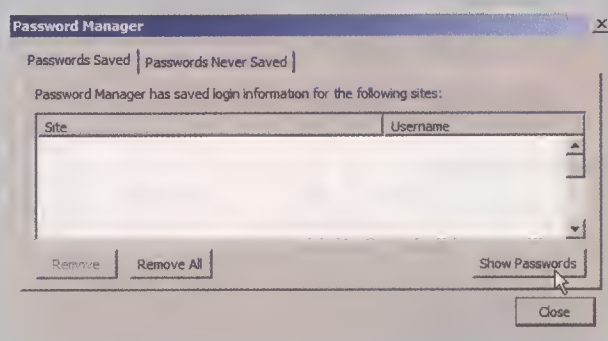
### Counter-espionage

Reader Peter Jackson purchased Sunbelt Software's CounterSpy on the basis of the recommendation on our website. However he found that it created a conflict with Microsoft AntiSpyware that brought his system to a complete halt. He thought we should pass on the advice he received from Sunbelt's support people to uninstall Microsoft AntiSpyware before installing CounterSpy.

Sunbelt Software has an agreement with Microsoft for it to provide spyware definitions for the CounterSpy software, so you won't lose any of the protection AntiSpyware provides.

### Adobe clash

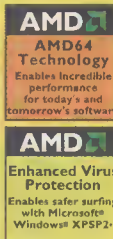
It can be irritating when PDF files refuse to display in a browser window, and reader Pete Morffew passes on a possible reason for it. He had this problem on his work computer, and it was tracked down to a clash between two different versions of Adobe Reader. Uninstalling both versions and then reloading the latest one solved the problem.



Need to find your Thunderbird password? Why try the Password Manager, of course...



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The only other way to transfer them is to play the videos on the recorder and capture them, using the highest quality output and a suitable capture card. If you capture the video in AVI format you'll minimise the loss of quality, but the results are still unlikely to be as good as if you burn them to disk on the recorder itself.

## NO CAPTURE

**Q** My wife's computer has an AMD Athlon 1.3GHz processor and a Maxtor 61GB hard drive. Its operating system is Windows Me. Because it doesn't have a FireWire input, she purchased Pinnacle Studio DV Clip, which contained a video editing card and Pinnacle Studio 7.0 software.

When she tries to perform a capture, a window appears saying: 'The data rate on drive C is less than the required rate of 4,000Kbps.' A data rate test gave a speed of 2,289Kbps (kilobits per second) for both read and write. What can she do to enable her to capture video from her Sony camcorder? *Alan Greenfield*

There are several things she can check, Alan. First, make sure the IDE cable connecting the hard drive to the motherboard is not also connected to another, slower, device that may be limiting the speed of the connection.

Next, try to arrange it so that any other devices in your computer, such as CD writers or Zip drives, are on a separate IDE cable connected to the secondary IDE interface on the motherboard, if possible.

Also ensure that DMA transfers are enabled for the hard drive. To do this, right-click My Computer and select Properties. Choose Device Manager, and expand Disk Drives. Select the hard drive and click Properties.

Choose the Settings tab, and ensure that the option marked 'DMA' is ticked, then click okay and restart the computer. You could also check the computer's Bios settings in case there are any IDE interface settings that are currently less than optimal. As a final resort, try disabling the antivirus software in case it is slowing the data rate by checking every single disk access request.

## BUGGED BY DEBUGGER

**Q** I'm bugged by a problem with the .NET Framework. Every time I run a program that requires it, I receive a series of error messages captioned '<program name> - Common Language Debugging Services'.

I thought I had got rid of them with a reformat, but they seemed to come back after an update. Can you recommend a fix? *John Kane*

These messages are caused by hooks in the Registry that allow a debugging tool to report on an untrapped error. Apparently, they only appear if you have installed the .NET Software Development Kit. If you just have the runtime, you shouldn't see them.

You can easily disable these debugger hooks by changing a couple of settings in the Registry. Expand Hkey\_Local\_Machine\Software\Microsoft\Windows NT\Current Version and set the value of AeDebug to nothing. Expand Hkey\_Local\_Machine\Software\Microsoft\NETFramework and set the value of DbgJITDebugLaunch Setting to one.

## PORTABLE VIEWER

**Q** Now that portable DVD players are available with a good-sized screen at a reasonable price, I'd like to buy one. But is there a way to import photos to them from a flash drive or a memory card?

Dedicated devices such as the iPod Photo are more expensive, and have a smaller viewing screen. Wouldn't this be a logical development? *Ian Tasker*

It would, and with luck perhaps we'll see it in future products. In the meantime, many portable DVD players can play photos that have been copied from a memory card and burned to CD as Jpegs.

Most CD-burning packages also have the ability to create a video CD of still images from your photos, which can be played on any DVD player. However, using this method the quality may be disappointing due to the low resolution and the amount of compression used. ☒

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The PC Advisor online Helpproom contains an indispensable database of answers to common questions, regarding all aspects of PC software. This ranges from general Windows issues to problems with specific applications, and covers all types of PC hardware and software including system components and peripherals.

Alternatively, you can ask for help from one of the visitors in our online forums. Sign up to be a registered user (which is free) and then browse to one of the discussion forums. In the Helpproom your first stop should be the searchable database of frequently asked and previously answered queries. With over half a million postings, you'll almost certainly find the answer you need in this archive of queries - just enter a few keywords.

If our online database can't solve your problem, try posting a question in the Helpproom forum, where more than 200 queries are answered every day. The forum is manned by our team of Helpproom angels who are ready and willing to lend a hand with anything from system crashes to virus alerts.

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National Geographic Designs is a set of superior nature photos. Unlike some picture collections, this one doesn't include a single dud. Every image has appeared in the world-renowned *National Geographic* and was taken by a professional photographer - so you can be confident that any documents you create will be pretty special.

As with other Greenstreet software products, it's easy to find your way around National Geographic Designs. A tutorial is provided, demonstrating how to work with the template documents provided, but the program's interface is very straightforward and you should have no trouble getting to grips with it.

When National Geographic Designs first opens, you're given the option of starting a new project or working on one you've already created. There are plenty of templates to choose from - 40, in fact - and you can personalise them as much as you like. As well as altering the wording, you can swap or resize photos, change background or text colour and add effects.

Double-click the thumbnail of a template and it will open up for editing. If you've zoomed in using the magnification tool, clicking the central button instantly resizes the view so the layout fits onscreen.

The default design for all templates is portrait, but if you click

on the button to the bottom left of your chosen design, you can switch to landscape orientation.

The rest of the buttons are just as easy to use. Choose the one second from the top on the right of the workspace to import a new photo. Click Cancel when the program asks you to insert the content CD for National Geographic as we've included all the necessary resources on the cover disc. Browse to the folder labelled Content on the disc, then double-click the Photos file. Images are grouped by subject, making it easy to find something suitable.

To create a text box, simply click on the T tool. To change background or text colours, hit the colour button at the far right and it will bring up a colour wheel. For a radial effect, use the blue and red coloured paintbrush icons to select shades to be blended together.

To move or resize any element of your design, click within its dimensions. Handles will appear around it and you can drag the item into the desired position and size.

To add more design elements, click the appropriate box and National Geographic Designs will automatically generate a box for you to type in or import another graphic to.

When you're finished, hit the Save icon at the top-left and enter a memorable file name.



Add that authentic beach feel to your party invitations

### >> INSTALLATION DETAILS

Go to Start, Run and type d:\setup.exe

266MHz Pentium PC; Windows 98 SE/Me/2000/XP; 128MB RAM; 170 MB hard disk space



# MadeSafe Antivirus

## EXCLUSIVE FULL PROGRAM

MadeSafe helps protect your PC from all sorts of web-borne nasties, and is part of a series of security products that have been designed to work in tandem to safeguard and optimise your system.

Given the growing prevalence of phishing and other internet scams, an application that prevents viruses getting on to your system and alerts you to the presence of any nefarious activity is an absolute must.

MadeSafe's creators use the same technology as Microsoft to verify this software, so there's no danger of viruses or any other unexpected consequences of loading up any MadeSafe software.

This technology, Norman Virus Control with Sandbox, certifies that no worms or viruses are embedded in your software. It's used by Microsoft to verify patches and updates.

Similarly, MadeSafe is able to update your PC with the latest antivirus definitions - even if you haven't been online for some time. This means you don't have to worry about any new viruses that emerge after you install the software.

To get started with the program you must first install and register the MadeSafeClean application at [www.madesafe.com/pcavc](http://www.madesafe.com/pcavc). Once you've entered your contact details, MadeSafe will send through a verification message with your CD key code and a serial code. You will need to enter this in the 'passphrase' box.

Once MadeSafe has finished installing, the software offers to create an emergency recovery disc

for you - an invaluable backup should the worst happen and your PC fail.

MadeSafe Clean is the company's Windows and web cleaner and provides a clean slate to install the Antivirus app. MadeSafe Cleaner rids your PC of items that may be used to steal your identity or to take part in other fraudulent activities. Once these have been eliminated, your PC will run more efficiently, as there won't be any stealthware apps to hobble it.

Once the software is up and running you'll notice a list of useful links, categorised by suitability for specific age groups, which MadeSafe has identified as being appropriate for children to browse.

Although the Antivirus program expires after 90 days, PC Advisor readers that decide to buy the full version of MadeSafe Antivirus qualify for a special discount, reducing the price from £24.99 a year to £14.99 (see page 195). You then qualify for further free software, and you can become part of the MadeSafe Community, with further information on how to protect your PC. ☒

### »» INSTALLATION DETAILS

Go to Start, Run and type `d:\setup2.exe`.  
For 90 days of updates, register at [www.madesafe.com/pcavc](http://www.madesafe.com/pcavc)

### SYSTEM REQUIREMENTS

166MHz Pentium PC; Windows  
98/Me/2000/XP; 32MB RAM;  
8MB hard disk space

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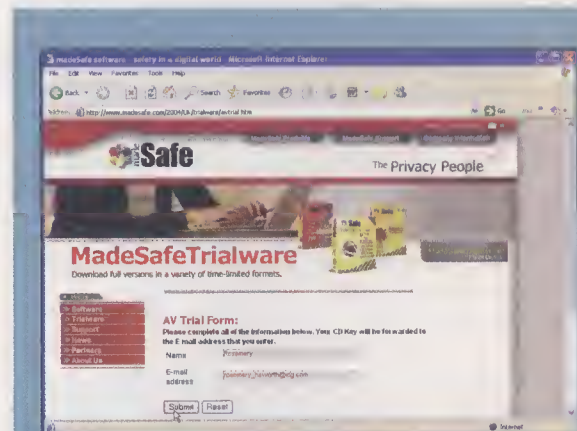
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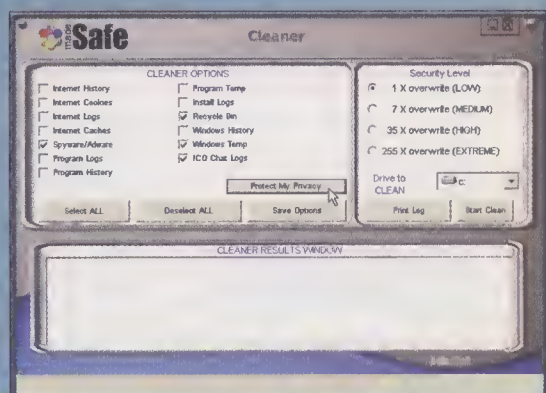
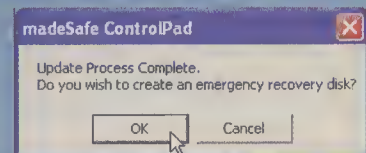
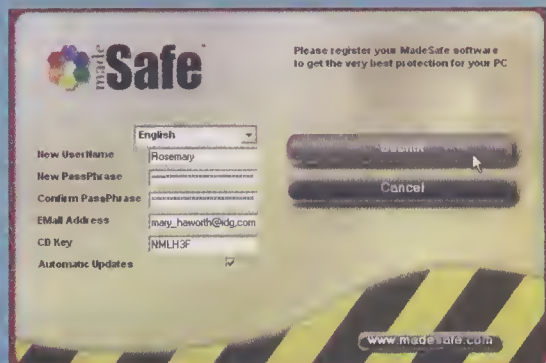
It is recommended that you back up any programs and data on your hard disk before installing this software. Where telephone numbers are given for registration of cover disc software, these lines may only be valid for a limited period.

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Register the software at MadeSafe's web site (above) to receive a CD key code, which allows you to activate the software and enjoy the benefits (below)



MadeSafe Cleaner can rid your PC of stealthware and other unwanted stowaways that may hinder performance

## SuperFlexible File Synchronizer SE FULL PROGRAM



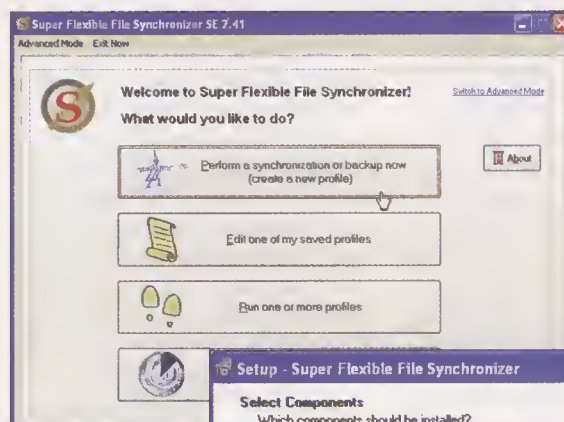
When you launch SuperFlexible File Synchronizer SE you must first specify the version of Windows you use. At this point you can also ask the installer to set up additional apps for accessing and unpacking zipped files, and synchronising files remotely.

If you work across different PCs - perhaps one at home and one in the office - or routinely swap between a desktop system and a notebook, this could be quite a boon.

Once SuperFlexible File Synchronizer is installed, you should begin by telling it where you keep documents and where you want them to be backed up to. Usefully, it suggests areas on your PC it believes files may be stored. You can back up to a network, another PC, or removable media such as CD, DVD or a tape drive. Alternatively, you can specify the location of an FTP site.

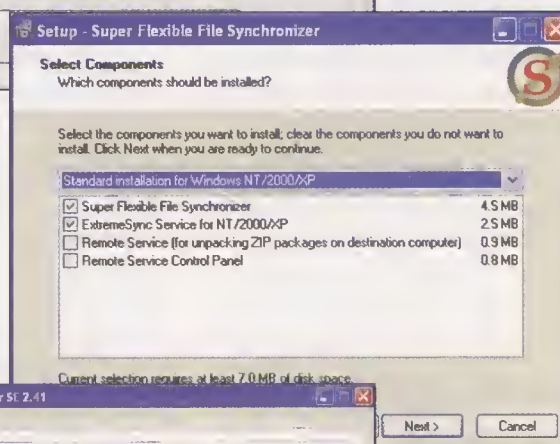
The software simplifies the naming of the source and backup versions of your files by calling them Left and Right folders - make sure you've entered them as the wizard prompts. This way, the program will know which versions of duplicate files should take precedence, so that these aren't overwritten. Naturally, it also takes into account details of when such files were last modified.

SuperFlexible File Synchronizer runs in Professional mode for the first 30 days, giving you time to discover if you find it useful. After that, the software reverts to SE (special edition), which may not boast as many features, but is still handy to have in your armoury. ☒



The program can back up to a network, another PC, or to removable media

Specify which version of Windows you use

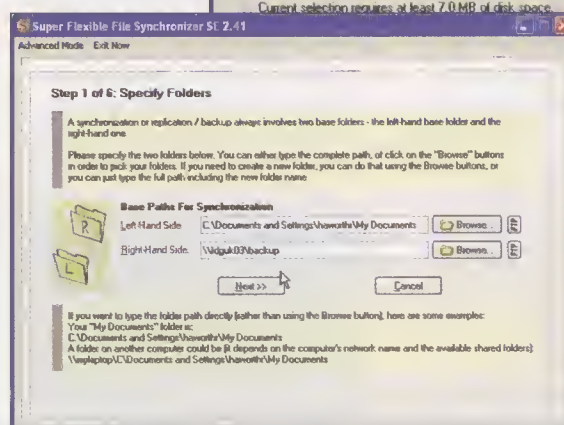


### INSTALLATION DETAILS

Go to Start, Run and type d:\full\superflexible\superflexiblesetup.exe. Go to d:\full\superflexible and run the file called makesffs\_se.exe to unlock the full features of this application

### SYSTEM REQUIREMENTS

166MHz Pentium PC; Windows 98/Me/2000/XP;  
32MB RAM; 8MB hard disk space



Source and backup versions are referred to as Left and Right

## Network Password Manager 1.25 FULL PROGRAM



'Save and protect' could be Sowsoft's motto. A multifunctional program for storing, managing and protecting valuable files and passwords, the company's Network Password Manager is ideal for a work environment because it supports multiple users.

Not only can it store both passwords and login details, but it can also hold additional information. This includes website addresses,

comments, documents, custom fields and so on.

Like the other two utilities from Sowsoft on this month's disc - Big Crocodile (see page 196) and Active System Locker - NPM has an interface even novices will find easy. To ensure all your passwords are kept safe it employs strong 256bit AES encryption. Adminstrating the software is simple and it provides flexible configuration options. ☒

### INSTALLATION DETAILS

Go to Start, Run. Type d:\full\sowsoft\npmanager\setup.exe

### SYSTEM REQUIREMENTS

166MHz Pentium PC; Windows 98/Me/2000/XP; 32MB RAM;  
8MB hard disk space; LAN connection

### PRODUCT KEY

To continue using this program after 30 days, use the key.txt file in the d:\full\sowsoft folder



# Special offers

For great deals on software, look no further than our voucher page. All offers subject to availability

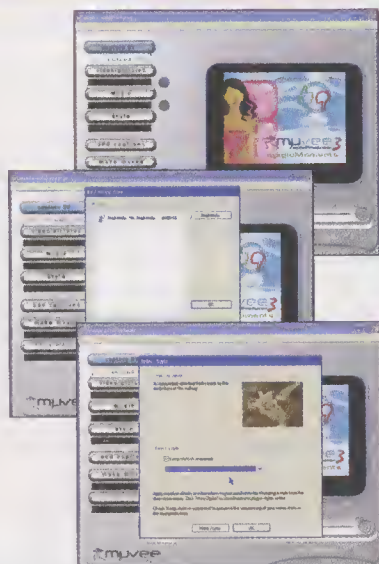
## 25% off Muvee AutoProducer 4.1 upgrade!

PC Advisor readers can take advantage of a massive 25 percent discount if they choose to upgrade to Muvee AutoProducer 4.1.

The retail value of 4.1 is \$69.95, or £39, but PC Advisor readers can make the change for just £29.95.

Version 4.1 gives readers the chance to try out an extra 19 styles, offers unlimited pictures and supports integrated DVD authoring, as well as many more superb features.

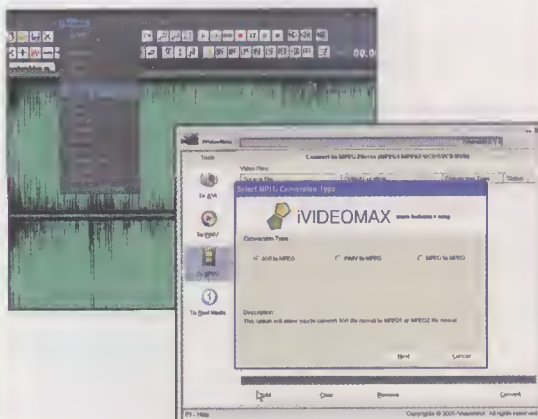
Access the special offer via [www.muvee.com/offer](http://www.muvee.com/offer)



## Big discounts on latest iVideoMAX!

The latest version of SoftDiv iVideoMAX supports many more video formats, including QuickTime MOV and ASF. There are new features like Video Splitting, Video Merging, Create Video from a sequence of images and Extract Video to Images. Normally priced at \$29.95 (£17), iVideoMAX 3.4 can be yours for only \$19.95 (£11).

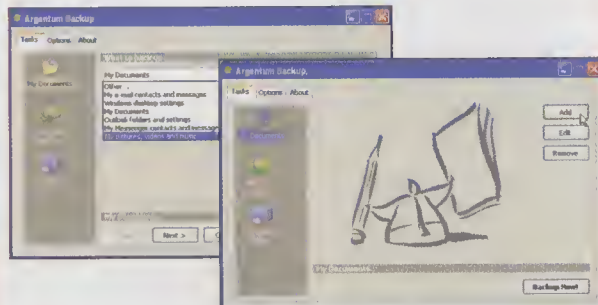
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## 15% off Argentum Backup 2.5 upgrade!

If you've tried out Argentum's Backup 1.9 from the cover disc and would like to upgrade to the latest version, today's your lucky day. PC Advisor readers are being offered an exclusive 15 percent discount via the Argentum website.

Visit [www.argentuma.com](http://www.argentuma.com) and order Backup 2.5, making sure you enter the promotional code, NICE-MPLB, when you get to the shopping trolley to take advantage of the special offer price. Argentum's latest version has plenty to offer: a faster, more reliable backup engine; improved revised documentation; faster, more reliable removable media backups; enhanced scheduling; bug-fixes and lots more!



## Extend AV updates - save 40%!

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Get 12-months' of AV updates for MadeSafe Antivirus. Readers need to go to [www.madesafe.com/pcadvisor](http://www.madesafe.com/pcadvisor) to get the discount. The word 'pcadvisor' is the token code to get the saving. PC Advisor readers can get the full 12-months' of updates for £14.99 instead of the usual £24.99





## Argentum Backup 1.9 FULL PROGRAM



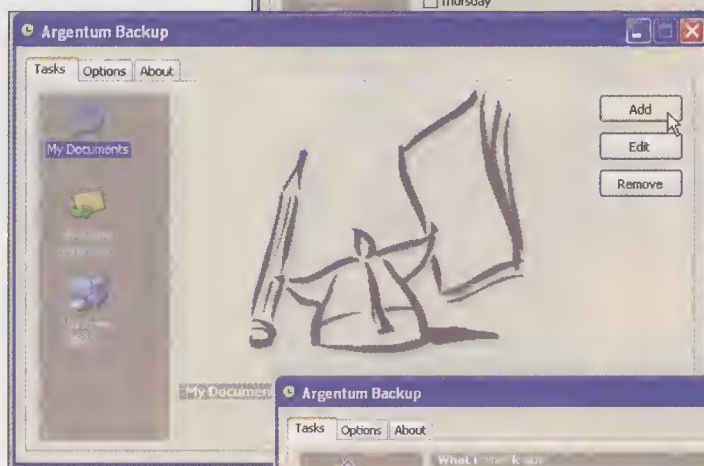
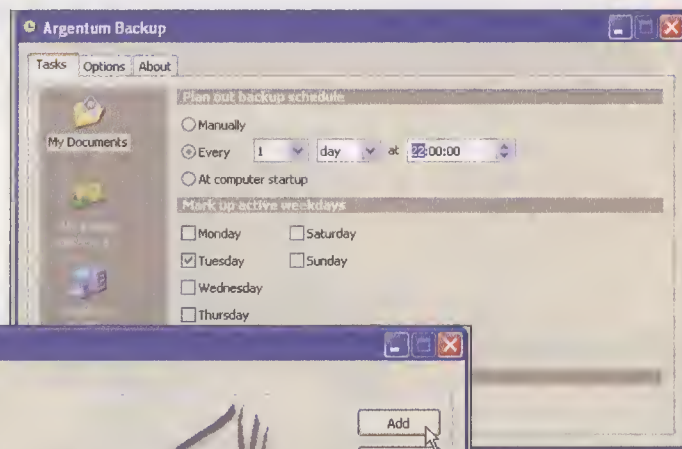
If you're after a quick-and-easy way to create backups of your files, Argentum's approach may well appeal. As well as making copies of the files and folders you create, it can be used to save backups of your Outlook contacts, your instant message conversations and Registry settings.

Argentum Backup takes only a few seconds to install and - unlike some similar programs - doesn't force you to spend aeons going through lists of locations, manually adding folders and specifying times and exceptions to the routine.

Load up Argentum from the cover disc and, in about four clicks, you'll have set up everything. Its default schedule is to back up at midday each day, but you can change this in a trice using this simple interface.

If you're a music and digital photo fan, you'll probably appreciate the option on the drop-down menu to automatically back up your multimedia files. ☒

It's easy to change the backup schedule



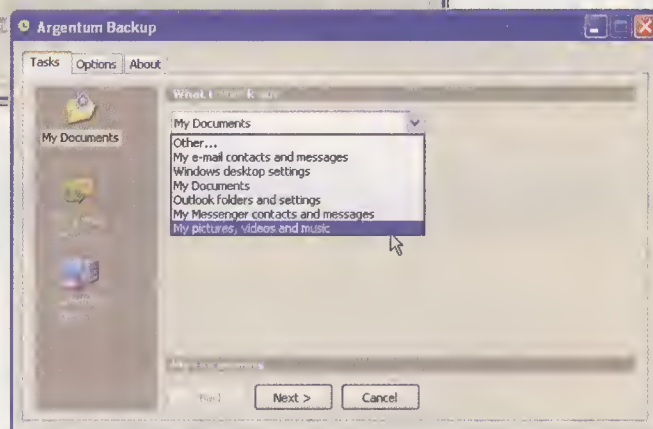
The simple interface makes Argentum a doddle to use

### »» INSTALLATION DETAILS

Go to Start, Run. Type d:\full\argentum\backup190.exe. Go to d:\full\argentum and View license.txt to unlock this full software

166MHz Pentium PC; Windows 95/98/NT/Me/2000/XP; 32MB RAM; 8MB hard disk space

This option will appeal to music fans and those with large digital photo collections



## Sowsoft Big Crocodile 3.11 FULL PROGRAM



We've all got loads of passwords for umpteen sites, so a robust, secure password manager such as Big Crocodile is a real must-have.

It can store passwords, logins and hyperlinks in a securely encrypted file. Then when prompted it will insert the required password into the relevant window. Or assign passwords to hotkeys for faster access.

Stuck for a password? Let the advanced password generator create

some uncrackable codes for you. It can even create up to 1,000 passwords in a single execution. Alphabetic, numeric or alphanumeric passwords of any length can all be generated in lowercase, uppercase or a mixture.

And Big Crocodile can support multiple users too, each of whom can have their own file or files. ☒

### »» INSTALLATION DETAILS

Go to Start, Run. Type d:\full\sowsoft\bigcrocodile\setup.exe

166MHz Pentium PC; Windows 98/Me/2000/XP; 32MB RAM; 8MB hard disk space

To continue using this program after 30 days, please activate the relevant product keys in the d:\full\sowsoft\product-keys folder



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## Muvey AutoProducer 3.5 CE FULL PROGRAM



Getting started with video-editing on your PC can be a daunting prospect. Muvey AutoProducer helps you through each step of the way, making producing your first multimedia clips a doddle.

First you locate a film or some still photos stored anywhere on your computer. The program works with AVI, Mpeg1, Mpeg2 and DV clips. And there's a capture function to grab camcorder footage.

If there's no dialogue on your footage, you might want to overlay an MP3 track as background music. Muvey AutoProducer automatically syncs the footage length to the song.

Editing your clips couldn't be easier. You can specify one of a range of effects, such as sepia, for your footage add captions to imported photos and choose the sorts of scene transition you prefer. Once you've entered title and credit details at the

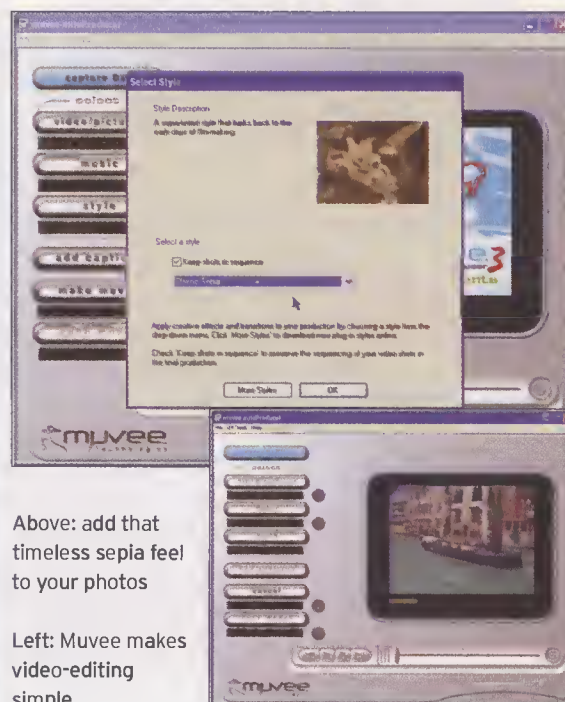
beginning and end, Muvey AutoProducer takes over, applying all the effects you've chosen and automatically editing the footage. After instantly previewing the rushes, you can tweak anything that doesn't quite work and then create an Mpeg2 movie, a DVD or an emailable clip.

You can save the project in progress, if required. You only need to render the final film once you've finished editing and revising. ☒

### INSTALLATION DETAILS

Go to Start, Run. Type d:\full\muvey\ap35CE.exe

550MHz Pentium III; Windows 98 SE/Me/2000/XP; 128MB RAM; 16MB video RAM; 500MB hard disk space; DirectX 9.0



Above: add that timeless sepia feel to your photos

Left: Muvey makes video-editing simple

## Dexster 1.0 and iVideoMax FULL PROGRAMS



Above: use Dexster's numerous settings to polish up your musical offerings

Right: format conversion is a breeze with iVideoMax



If you fancy yourself as the next Pete Waterman, load up Dexster and try your hand behind the mixing desk.

This great full program demonstrates the flexibility and power offered by a production app such as this. Endless drop-down menus and slider bars can be used to make subtle corrections or radical alterations to almost any aspect of your audio tracks. It's that easy.

Once you've mashed up an old favourite or created a whole new aural experience, you can export it to a number of formats - you could even

add your completed tune to movie footage or a photo slideshow.

iVideoMax is a useful tool for quickly and easily converting movie footage from one format to another. For example, AVI clips you've recorded on your digital camera can be changed to Mpeg or Windows Media Video files at the click of a mouse.

You can specify quality settings depending on how the finished clip will be stored and played back. You can also combine several clips with ease, even if they weren't initially in the same format. ☒

### INSTALLATION DETAILS

For SoftDiv Dexster 1.0, go to Start, Run. Type d:\full\softdiv\audioeditor.exe

For SoftDiv iVideomax, go to Start, Run. Type d:\full\softdiv\videomax\_mag.exe

### SYSTEM REQUIREMENTS

166MHz Pentium PC; Windows 98/Me/2000/XP; 32MB RAM; 8MB hard disk space



## Battlecruiser Millennium FULL GAME



Thrilling gameplay is the order of the day with this better-than-ever simulation. Now in its third iteration, Battlecruiser Millennium trains you up as a pilot or marine and lets you loose on training runs and intergalactic strike missions.

The graphics are pretty impressive, thanks to the DirectX 8.0 support and the ability to display 32bit detail. Battlecruiser makes the most of this with the inclusion of AI elements and programming that ensures even the planets you land on are believable.

There are more than 250 intergalactic items to find, and you can choose to represent one of 12 races, specifying your place in the hierarchy. Once you're a seasoned warrior you can play tactically, making deals with those you encounter and trading items from your battle kit.

Of course, capturing and destroying space stations may be more up your street than playing peacemaker. When you've done your worst with your armoury of snipers and weaponry, you can make good your escape – even indulging in a bit of vehicle-napping and heading off into the ether. ☒



Left: blow things up then run away

Below: stylish graphics are probably Battleship's best feature

### INSTALLATION DETAILS

Go to Start, Run. Type d:\games\bcm10903free.exe

### SYSTEM REQUIREMENTS

300MHz Pentium II; Windows 98/Me/2000/XP (with all service packs); 64MB RAM (128MB minimum for 2000/XP); 16MB DirectX 8.0-compliant 3D graphics card; 16bit DirectX 8.0-compliant sound card; 500MB hard disk space; DirectX 8.1b or higher



## Games domain DEMOS



- **Aerial Strike** Take to the skies and take on foes across the galaxy as you pilot your deadly fighter ship, beating baddies who are keen to take over control of Earth, for some reason.
- **Bard's Tale** Hugely funny game in which you get to play a bawdy bard who loves to impress the laydeez with cheeky lyrics and witty repartee.
- **Telltale Texas Hold 'Em** An absurd take on poker, with some truly odd opponents whose quirky ways will leave you holding your sides with laughter – but will you be able to hold on to your chips?
- **Supreme Ruler 2010** If you enjoy a quick game of Risk, Supreme Ruler is likely to be right up your street. Combining military tactics, diplomacy and governorship, you compete

against others to become master of all you survey.

- **Salvo** Travel back to the early 19th century and find out just how tricky it is to steer a wooden warship and fire a cannon without the benefit of a missile guidance system.
- **X-Plane 8.11** Update of Laminar Research's popular flight simulator, with several bugs ironed out.
- **Delta Force: Extreme** One of the original first-person shooters debuts at Games Domain, with 20 levels of fun, destruction and machismo.
- **Fear (First Encounter Assault Recon)** Forewarned is fore-armed: find out what this yet-to-be-released reconnaissance and assault game has in store with this in-depth and entertaining trailer. ☒

How to fail your driving test, courtesy of Delta Force: Extreme



Telltale Texas Hold 'Em 'raises the stakes'



# Classified

<b>Consumables</b>	<b>1, 2, 3, 4, 5, 6, 8</b>	<b>Data Recovery</b>	<b>1</b>
247ink.co.uk	6	Dataquest-International	1
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Cartex	4		www.flashdrive-direct.com
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Phoenix	8		www.IT-Buy.co.uk
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Control Panel	✓	✓	✓	✓	✓	✓
Network Monitoring	✓	✓	✓	✓	✓	✓
Visitor Statistics	✓	✓	✓	✓	✓	✓
CGI Perl, SSI	✓	✓	✓	✓	✓	✓
Firewall Security	✓	✓	✓	✓	✓	✓
FREE Web Tools & Scripts	✓	✓	✓	✓	✓	✓
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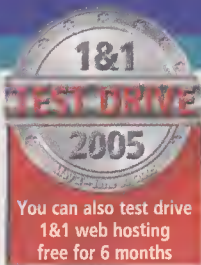
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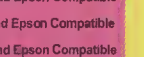
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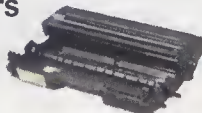
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Aopen 52X32X52 CD-RW Retail	11.91	14.00
Optorite 52X32X52 Burnproof (Beige+Black Bezel) Retail	14.47	17.00
Optorite 52X32X52 Burnproof (Retail)	14.47	17.00
Aopen 52X32X52x16 Combo Drive (OEM)	18.72	22.00
Liteon Combo Kit 52X32X52x16 (5232K) (Retail)	21.28	25.00
Liteon Black CD-RW Bezel	1.28	1.50
Liteon Silver CD-RW Bezel	1.28	1.50

**CD-ROMS**

	EX. VAT	INC. VAT
ASUS A8V-E Deluxe (WIFI-g) K8T890 PCIE (A64 SKI 939)	59.57	70.00
MSI K8N Diamond NForce4 SLU PCIE (SKI939)	70.64	83.00
ASUS A8V-E Deluxe (WIFI-g) K8T890 PCIE (A64 SKI 939)	59.57	70.00
MSI K8N Diamond NForce4 SLU PCIE (SKI939)	70.64	83.00

**CD-ROMS**

	EX. VAT	INC. VAT
Trust Mi-1500X Mouse	4.26	5.00
O-Tec Optical Mouse	4.26	5.00
Trust 250S Wireless Mouse	5.11	6.00
Trust Optical 250S Mouse	5.96	7.00
Mini Voyage Black 3D Optical Mouse	8.51	10.00
Trust Mi-2500X Optical Mouse	8.51	10.00
Trust Micro Mouse	8.51	10.00
Mini Voyage Silver 3D Optical Mouse	8.51	10.00
O-Tec Optical Wireless Mouse	10.21	12.00
Trust Ami Mouse 250SP Wireless Optical	11.06	13.00
Lynx Otronix USB Mouse and 3 in 1 Card Reader	11.06	13.00
Trust Mi-4100 Wireless Optical Mouse	12.77	15.00
Trust Ami Hand Track Pro	14.47	17.00
Trust Mi-5300M Bluetooth Optical Mini Mouse	25.53	30.00

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780, 800, 850, 860, 880,  
900, 980, 1160, 1200,  
1220, EX, C20, C40  
cyan 2000, 2500

\*black from £1.12  
\*colour from £1.85  
when bought in packs of 8  
\*pairs from £2.38  
when buying 8 pairs

stylus colour (chipped)

700, 777, photo 790, 810  
830, 830, 870, 890, 895,  
900, 915, 925, C42, C44,  
C46, C50, C60, C62,  
CX3200, photo 1270, 1290

\*black from £2.10  
\*colour from £2.60  
when bought in packs of 10  
\*pairs from £3.89  
when buying 10 pairs

stylus colour (chipped)

photo 950, 2100,

black from £2.50  
colour from £2.50(e)  
when bought in packs of 3

C84/C66/C84/C86

black from £2.66  
colour from £2.66(e)  
when bought in packs of 3  
full set £11.49

770/C80/C82/CX5200  
CX5400

black from £2.66  
colour from £2.66(e)  
when bought in packs of 3  
full set £11.49

R200/R300/RX500/  
RX600

black from £2.50  
colour from £2.50(e)  
full set from £14.00  
when buying 10 + sets

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colour from £2.62(e)  
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photo matt CD labels (x50) £5.99

photo gloss CD labels (x20) £3.99

photo gloss CD labels (x50) £7.99

### canon compatible

BCI 10 black

BJ30, BJC50, 70, 80, 55  
85, BN700, starwriter jet £1.50 each  
300, 500, 4000

BCI 11 black / colour

BJC50, 70, 80, 85 black £1.00  
BN7000, starwriter jet colour £2.00  
350c, 550c

BCI 21 black / colour

BJC2000, 4000, 5000 black £1.50  
Multipass C20, C30, C50 colour £2.00  
1 pair £3.00  
3 pairs £8.50

BCI 24 black / colour

S200, S300, i320, i450 black £ 1.50  
i470, i570 colour £ 2.00  
1 pair £ 3.00  
5 pairs £12.00

BCI 3 / 3 photo

BJC3000, 6000 series, £2.00  
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S6500, i550, i850 £5.99 for 4

BCI 6 / 6 photo

BJC8000, S8000, i950, £2.00  
S9000, i9100 black/colour  
£5.99 for 4

### canon remanufactured

BC 02 black £ 8.25 £5.99

BC 05 colour **Superfill** £11.75 £7.99

BJ150, 210, 240, 250

1000 series

BC 20 black £10.49 £5.99

BJC2000, 2100, 2110, 4000,

4100, 4200, 4300, 4400,

4550, 4650, 5500, MPC-20,

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### PHOENIX DVDR's

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DVD Printable 4x +R(x25) £12.99

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HP C6657A colour

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1300, 5552, 5550, 7600

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HP 51625A colour

desk jet 400, 500 £11.75 £7.99

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693c, 694c, 695c, 697c

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925xi fax

HP 51649A colour

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693c

HP 51645A black

desk jet 710, 715, 720 £8.50 £5.99

722, 815, 820, 850, 870

880, 890, 895, 950, 970

1100, 1120, 1600

HP C6615D black (42ml) **Superfill**

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843c, PSC 500

HP C1823D colour (38ml) **Superfill**

desk jet 710c, 715c £13.89 £7.99

720c, 722c, 810c, 815

880c, 890c, 895, 1120

PSC 500

HP C6625A colour (38ml) **Superfill**

desk jet 840c, 843c £13.99 £7.99

HP C6578A (38ml) **Superfill**

desk jet 930, 950 £13.99 £7.99

970CXI, 1220, G55

G85, G95

### Lexmark remanufactured

12A1970 black

Z53, Z52, Z51, Z45, Z43,  
X85, X83, X73, X125,  
7200, 7000, 5700, 3200 £14.99

12A1980 colour

Z31, Z11, Optra 45, 40,  
7200V, 7000, 5770,  
6000, 3200, 3000 £15.99

1380619 / 13619HC colour

Medley 4x, Medley 4c,  
Winwriter 150c, 100,  
Exejjet IIc, 2055 £15.99

17G0050 black

P706, P700, Z12, Z22,  
Z32, Z700, Z703, 3100 £14.99

17G0060 colour

Compaq LJ600, Z32,  
Z22, Z12 £15.99

### xerox compatible

C / M / Y / B

XJ4C, XJ6C, 450CP £2.00 each

DWC450C, C6, C8 £7.50 full set

C / M / Y / B

(High capacity)

M750, M760, M940 £12.00 full set

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d/s matt card 210gsm (x100) £9.99

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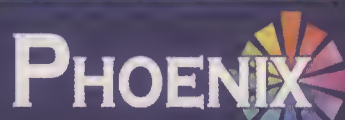
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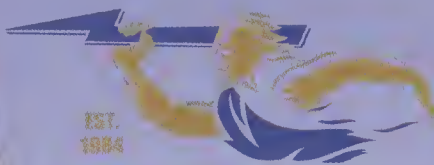
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- 512MB DDR 3200
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- Logitech Internet Pro Keyboard
- Logitech Optical Wheel Mouse
- 1.44MB Floppy Disk Drive
- ASUS 52x32x52 CDRW 16x DVD
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- AMD Sempron 3000+
- 512MB DDR 3200
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- Logitech Internet Pro Keyboard
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- 1.44MB Floppy Disk Drive
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- ASUS V9520-X Nvidia FXS200 3D Graphics
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- AMD 64Bit 3000+ Skt 939
- 1GB DDR 3200
- B Channel On-Board Sound Card
- 120GB 7200RPM Hard Drive
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# Top 10 charts

The Top 10 charts rank and rate the hottest kit every month. If you're looking for the latest Best Buy and Recommended products, look no further than our 100+ reviews

Top-ranking chart entrants are eligible for either Best Buy or Recommended awards. A Best Buy takes the number one spot, thanks to a combination of features, performance and value for money, while Recommended products are pretenders to the Best Buy crown. Almost as good, they offer great value, quality and performance.

Chart placings are based on a calculation of features and performance compared to price, so the highest scoring products also represent the best value for money.



## Superbudget PCs

There's never been a better time to invest in a new system. We've spent the past month testing the best, and we've found 10 great PCs that you can buy for under £500. Turn to page 212 to see the results



## Prices

All of our chart prices include VAT. Our price categories for PCs, notebooks and digital cameras are as follows:

### PCs

<b>Superbudget PCs</b>	<b>under £500</b>
<b>Budget PCs</b>	<b>£501-£1,000</b>
<b>Power PCs</b>	<b>over £1,000</b>

### Notebooks

<b>Budget notebooks</b>	<b>under £1,000</b>
<b>Power notebooks</b>	<b>over £1,000</b>

### Digital cameras

<b>Budget</b>	<b>under £200</b>
<b>Intermediate</b>	<b>£201-£700</b>
<b>Professional</b>	<b>over £700</b>

All prices printed in *PC Advisor* are quoted by the manufacturer or distributor and include VAT. Prices are only intended as a guide and you may see products on sale for less or more than our quoted price.

If you're interested in purchasing any of the products reviewed here then please contact the manufacturer or supplier direct, mentioning both *PC Advisor* and the issue in which you saw the product. If it won't supply the product as reviewed, contact us at [pcadvisor\\_reviews@idg.com](mailto:pcadvisor_reviews@idg.com).

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For more information on our benchmark software, WorldBench 5, please log on to [www.pcadvisor.co.uk/reviews](http://www.pcadvisor.co.uk/reviews)

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- Compatible with Windows® backup utility
- 2 years manufacturer's warranty as standard

### Available Models:

160GB, 200GB, 250GB, 320GB, 400GB,  
500GB, 1000GB, 1600GB, 2000GB



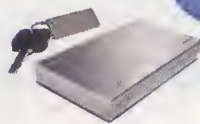
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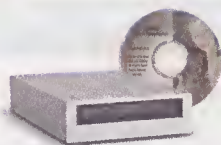
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FireWire & USB2.0 - 40GB, 60GB, 80GB, 100GB



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- Bundles include DVD authoring software
- 2 years manufacturer's warranty as standard

### Available Models:

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Slim Bx DVD+/-RW Double layer & CD-RW  
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- Includes LaCie RAID 0/1 utilities for multiple drive configurations

### Available Models:

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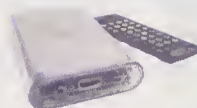


## NEW! LaCie 'Biggest Disk' FireWire 800 & USB2.0 RAID

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### Available Models:

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E&OE May 05



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Top 10  
Superbudget PCs

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PCADVISOR  
RECOMMENDED

PCADVISOR TEST CENTRE			Top 10 Superbudget PCs		Processor type Processor speed	Motherboard USB ports	RAM Hard disk capacity	Monitor Dot pitch Maximum resolution@75Hz
1		<b>Carrera Vision Plus 3200pca</b> 0871 222 3456 www.carrerassc.co.uk New	• £499 inc VAT • 3-year onsite warranty • First review Aug D5	AMD Athlon 64 3200+ 2.1GHz	ECS A939 6	512M8 DDR RAM 160G8 serial ATA	17in CTX VL701 D.27mm 1,024x768	
				>> WorldBench 5		92		
2		<b>Watford Aries Performa 5562</b> 0870 027 0900 www.ariespc.com New	• £499 inc VAT • 1-year onsite, 4-year return-to-base labour-only warranty • First review Aug 05	AMD Athlon 64 28DD+ 1.8GHz	MSI MS-6741 6	512M8 DDR RAM 160G8 serial ATA	17in ViewSonic VE710b flat-panel 0.264mm 1,28Dx1,024	
				>> WorldBench 5		83		
3		<b>NetHighStreet Net PA TFT 500</b> 0870 777 5252 www.nethighstreet.com New	• £5DD inc VAT • 1-year return-to-base warranty • First review Aug 05	AMD Athlon 64 30DD+ 2GHz	8iostar NF325-A7 6	512M8 DDR RAM 120G8 ultra ATA	17in Samtron 73v flat-panel D.297mm 1,280x1,024	
				>> WorldBench 5		86		
4		<b>Tiny Home 3GHz E10271</b> 01282 777 555 www.tiny.com New	• £499 inc VAT • 3-year return-to-base warranty • First review Aug D5	Intel Pentium 4 530 3GHz	Foxconn SIS649+964 6	1G8 DDR RAM 80G8 ultra ATA	17in Samsung SM710v flat-panel D.264mm 1,280x1,024	
				>> WorldBench 5		81		
5		<b>NetHighStreet Net PA64 500</b> 0870 777 5252 www.nethighstreet.com Last month 1	• £500 inc VAT • 1-year return-to-base warranty • First review Apr 05	AMO Athlon 64 3DD+ 2GHz	Asus K8N 8	512M8 DDR RAM 120G8 ultra ATA	17in Samsng SM793DF D.25mm 1,024x768	
				>> WorldBench 5		88		
6		<b>Tiny Vaike E10264</b> 01282 777 555 www.tiny.com Last month 2	• £499 inc VAT • 3-year return-to-base warranty • First review Jul D5	AMD Athlon 64 3000+ 2GHz	MSI K8TM-IL 6	512M8 ODR RAM 16DG8 serial ATA	17in Iiisonic M17F flat-panel 0.264mm 1,280x1,024	
				>> WorldBench 5		86		
7		<b>Gladiator Proteus 64 X100</b> 0845 644 4666 www.gladiatorcomputers.com New	• £499 inc VAT • 1-year return-to-base warranty • First review Aug 05	AMD Athlon 64 2800+ 1.8GHz	8iostar KBVGA-M 6	512M8 DDR RAM 160G8 ultra ATA	15in Dptronix OP-5005LS8 flat-panel 0.297mm 1,024x768	
				>> WorldBench 5		N/A		
8		<b>Carrera Vision 924a</b> 0871 222 3456 www.carrera.co.uk Last month 3	• £499 inc VAT • 3-year onsite warranty • First review May 05	AMD Athlon 64 3000+ 1.8GHz	WinFast CK804K8MA 6	512M8 DDR RAM 8DG8 serial ATA	17in CTX VL701 0.27mm 1,024x768	
				>> WorldBench 5		87		
9		<b>Vantage PCR3000</b> 0870 744 2468 www.vantagecomputers.co.uk New	• £499 inc VAT 1-year collect-and-return, 3-year labour only warranty • First review Aug 05	AMO Sempron 3000+ 2GHz	Asus A7S8X-MX 6	512M8 DDR RAM 12DG8 ultra ATA	17in Oigimate L-1715 flat-panel 0.264mm 1,28Dx768	
				>> WorldBench 5		77		
10		<b>Centurica Soho S3000</b> 0870 755 0550 www.centurica.com Last month 4	• £500 inc VAT • 1-year return-to-base, 2-year labour-only warranty • First review May 05	AMD Sempron 30DD+ 2GHz	Abit NF7 6	512M8 DDR RAM 120G8 ultra ATA	17in Samtron 78E D.25mm 1,024x768	
				>> WorldBench 5		82		



1 NEW Carrera Vision Plus 3200pca

PCADVISOR  
BEST BUY

At the top of the pile this month, although not by much, is the Carrera Vision Plus 3200pca. This PC has a few unique features that set it apart from its competitors. And while a few compromises have been made to keep it under £500, they don't really affect the overall quality.

The first thing to note is the Athlon 64 3200+ processor. Okay, we've seen this chip plenty of times before, but never in the sub-£500 price range. This processor, alongside 512MB of

DDR RAM, is largely responsible for an outstanding WorldBench 5 score of 92. It's a record result for this category, putting the Carrera a clear four points ahead of the opposition.

Also worth mentioning is the Carrera's 64MB GeForce 6200 TurboCache. 64MB sounds like a woefully small amount of memory for a graphics card, but the TurboCache technology allows it to borrow system memory - up to 256MB of it - when required. Although your PC's megabytes are being used while you're playing a game, it can have them all back as soon as you finish.



Graphics card maker Graphics chip Memory/interface	Sound card Speakers Subwoofer	Max DVD speeds Max CD speeds	Operating system, software and extras
nVidia nVidia GeForce 6200 TurboCache 64MB/PCI Express	onboard nForce 4 2 x Ozaki 2.1 yes	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works B.D., Panda Antivirus 2004
ATI ATI Radeon 955D 128MB/AGP	onboard Realtek 2 x Ozaki 2.1 yes	16x/16x/16x/4x/4x/4x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works B.D., Panda Antivirus 2004
ATI ATI Radeon 955D 128MB/AGP	onboard nForce 3 2 x Trust 2500P 2.1 SoundForce yes	16x/16x/16x/4x/6x/8x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Open Office, Norton Internet Security 2004
ATI ATI Radeon X700 256MB/PCI Express	onboard SIS n/a n/a	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works 8.0, Microsoft Office 60-day trial
Sapphire ATI Radeon 9550 128MB/AGP	onboard Realtek 2 x Trust 25DDP 2.1 SoundForce yes	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Open Office
ATI ATI Radeon 9800 SE 256MB/AGP	onboard Realtek 2 x Neutac S821-107 yes	16x/16x/16x/4x/6x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works 7.0, 6-in-1 flash memory drive
nVidia nVidia GeForce 5200 128MB/AGP	onboard Via 2 x Creative SBS260 no	16x/16x/16x/6x/8x/6x/8x (DVD-ROM/-R/+R/+R DL/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Professional 64bit Edition, Microsoft Works 7.D
MSI nVidia GeForce 6600 128MB/PCI Express	onboard nForce4 2 x Neutac S821-107 yes	16x/8x/16x/2.4x/4x/4x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works B.D
ATI ATI Radeon 955D 256MB/AGP	onboard SIS 2 x Logitech 2.1 yes	16x/16x/16x/4x/4x/4x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 48x/40x/32x (CD-ROM/-R/-RW)	Windows XP Home, Panda Platinum Antivirus
ATI ATI Radeon 9550 128MB/AGP	onboard nForce2 2 x Labtec Pulse 3B5 yes	16x/16x/16x/4x/6x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Open Office

Obviously this doesn't result in the fastest frame rates. Several of the Radeon 9550 cards produce superior performance, for instance, while the Tiny's Radeon X700 is a class apart. But as an answer to the onboard graphics solutions which prevail in this price category, the TurboCache is certainly an improvement.

Best of all, the money saved on graphics is used cleverly to bolster other parts of the system. Storage and backup options are second to none, the warranty is excellent and the software provided will set you up nicely. This PC scores well in most

categories and will be particularly suitable if baseline Windows speed is your priority.

## 2 NEW Watford Aries Performa 5562

**PCADVISOR RECOMMENDED** Narrowly beaten to the top spot by the Carrera, the Aries Performa 5562 from Watford Electronics manages second place, scooping a Recommended award in the process.

It seems that Watford hasn't had to cut too deeply to keep the Performa under £500, so this system is great value. The graphics card is



a decent performer that produced some competent frame rates in our game tests. And the 1.8GHz Athlon 64 2800+ processor and 512MB of DDR RAM pushed the Aries to a score of 83 in our WorldBench 5 tests.

The monitor is the excellent ViewSonic VE710b flat-panel, which is by far the best model in this price category. Both the sharpness and the depth of colour are ideal for detailed work. The amount of desk space saved is also pleasing.

A full 160GB of capacity, using the faster serial ATA interface, means the hard drive is among the best on offer. And your storage options don't end there. The Sony DW-D26A DVD writer can burn to a variety of different DVD formats, including DVD+R DL (dual layer). A five-year warranty ensures long-term protection.

It's the flat-panel that really distinguishes this system. But the rest of the features are also well up to scratch, resulting in a well-honed PC.

## 3 NEW NetHighStreet Net PA TFT 500

**PCADVISOR RECOMMENDED** This new system from NetHighStreet debuts in third place. In the past, PCs from this manufacturer have taken the Superbudget chart by the scruff of the neck with storming performance figures. But this model finds itself up against tough opposition and its WorldBench score of 86 doesn't really catch the eye – even if it's still enough to beat most of the PCs shown here.

We think a 120GB hard drive is slightly disappointing and the one-year return-to-base warranty is certainly not good enough. On the other hand the graphics card, while mid-range, does a reasonable job and the flat-panel doesn't let the side down.



Arguably the best single component in this offering is the NEC ND-3520A DVD writer. It can burn DVD+RW discs at a rapid eight-speed and it's no slouch at writing to DVD-RW media either, hitting six-speed.

There's nothing special about the NetHighStreet - but it still makes comfortable work of most tasks.

#### 4 NEW Tiny Home 3GHz E10271

**PCADVISOR RECOMMENDED** Fourth place goes to Tiny's excellent Home 3GHz E10271. We can't remember the last time a system powered by an Intel processor won a Recommended award in any of our PC charts. Despite Intel chips' clock speeds being much higher than their Athlon equivalents, performance figures tend to founder. In line with this, raw Windows speed isn't the Tiny's biggest strength - its WorldBench 5 score of 81 comes in towards the lower end.

However, Intel claims its processors are built for graphics performance, and the addition of an ATI Radeon X700 backs this up. Frame rates are in the high 30s for both Doom 3 and Halo at a resolution of 1,024x768. They suffer little fall-off at the next resolution up. Compared with the other PCs in the chart, this is one snappy performer.

You get a very high quality flat-panel as well, offering a good, sharp image and deep, rich colours. There's a full 1GB of DDR RAM - the best in the chart - but the hard drive, at 80GB, is among the smallest.

Tiny has included a pretty good software bundle but, although the warranty lasts for three years, the lack of onsite cover is a worry. This is a decent system, but average Windows performance keeps it down in fourth place.



#### 5 NetHighStreet Net PA64 500

Last month's Best Buy finds itself pushed out of the award-winning places. On its release, this PC's trump card was its sizzling WorldBench score. Now that's been eclipsed by the Carrera, the PA64 500 has rather less to shout about.

Memory configuration is standard, as is the 120GB hard drive. While the latter uses the older ultra ATA interface, this is unlikely to be a



problem for most users content with a £500 PC. You won't notice the difference when opening Word documents and spreadsheets.

Good image quality is provided by the monitor, and the graphics card is more than satisfactory - however, the lack of PCI Express may stymie future upgrades. The sound setup may be onboard, but it's given a decent shot by the Trust speakers. The warranty is, however, disappointing.

It's a safe bet rather than a showstopper, but the Net PA64 500 continues to put up a decent showing. A price cut wouldn't hurt, though.

#### 6 Tiny Vaike E10264

After making its debut in this chart last month, the Tiny Vaike is forced to give up its Recommended award by the glut of new entries. Make no mistake though, it's still a pretty handy all-round system.

Powered by an Athlon 64, the Tiny scored 86 points in our WorldBench 5 tests. The 256MB Radeon 9800 SE graphics card is starting to show its age, although it didn't perform too badly in our graphics tests.

It may not produce the sharpest picture in the chart, but the Tiny Vaike's 17in flat-panel certainly offers rich colours.



Supporting the DVD+R dual-layer format, the DVD writer is a fast model. Far more impressive, though, are its rewriting capabilities. You can use the DVD+RW format at the impressive rate of eight-speed - only one of the top five PCs can match this.

There's a six-in-one memory card reader for digital camera enthusiasts, but the cherry on the storage cake is the fact that the hard drive uses serial ATA and can hold 160GB of data.

#### 7 NEW Gladiator Proteus 64 X100

Even though it doesn't make the top half of the chart, the Proteus 64 X100 is probably the most interesting system here. The reason? Simple - the Gladiator uses Windows XP Professional 64bit Edition.

Unfortunately, this operating system isn't fully compatible with our benchmarking software, WorldBench 5. However, eight of the 12 tests that make up the suite will run on 64bit Windows XP. In these individual tests the Gladiator scored between 72 and 86 percent of the baseline system's score - putting it firmly in the lower half of the chart in terms of raw performance.

Otherwise, the Proteus has a sub-standard 15in TFT monitor and poor graphics performance, but the DVD writer is the best in the chart, writing to both DVD-R DL and DVD+R DL formats. There are two optical drives as well so, unlike many other Superbudget PCs, you can directly copy DVDs - where it's legal to do so.





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- NEC ND3520 Multi Format DVD/CD ReWriter - The Fastest
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- Sapphire ATI Radeon x850 XT - The Ultimate Graphics Solution
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- Sony Floppy Disk Drive
- 16 x 48 DVD/CD ROM Drive
- Creative Labs Audigy2 ZS 7.1 Digital Soundcard
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- nVidia 6600GT Graphics Card - Gaming Galore
- Sony Floppy Disk Drive
- 16 x 48 DVD/CD ROM Drive
- Deluxe Gaming Case
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### 8 Carrera Vision 924a

Dropping out of the top three, the Carrera Vision 924a isn't a bad sub-£500 PC - it's just that other systems in this chart offer better value for money right now. The socket 754 Athlon 64 3000+ processor combines with the 512MB of DDR RAM to push the Vision to a healthy WorldBench 5 score of 87.

But it's the graphics card that's the real gem. Playing Doom 3 and Halo, the GeForce 6600 pushed the Carrera to frame rates we'd only expect to see in the Power PC category. However, the monitor isn't much cop. Its glass is severely curved and the resulting fishbowl effect spoils an otherwise pleasing image.

The hard drive isn't huge, but uses the faster serial ATA interface. And there's not much room for upgrading.



### 9 NEW Vantage PCR3000

The last placed of all the new entries, the Vantage achieved the lowest WorldBench 5 score in the chart: a mere 77. We really expect a bit more from a PC, even when it's using a Sempron 3000+ chip. Consider this: the 3GHz Pentium 4 530 processor propelled the fourth-placed Tiny system to a score four points higher than this system.

We were disappointed by the 120GB hard drive, most notably because it uses the inferior ultra ATA interface. The flat-panel isn't too bad, but while the ATI Radeon 9550 graphics card might have 256MB of dedicated memory, it was far from outstanding in our tests.

There's not even any office suite software included to get you started. Good points? Well, we were impressed by the warranty.

### 10 Centurica Soho S3000

Propping up the chart is the Soho S3000 from Centurica - a PC which is now really beginning to show its age.

Sempron's 3000+ propelled the S3000 to a WorldBench 5 score of only 82. A poor monitor, relatively small ultra ATA hard drive and mid-range graphics card don't quite match up to the opposition, either.

The DVD writer is one of the more impressive components, with its eight-speed DVD+RW and six-speed DVD-RW capabilities. There's plenty of room inside the case should you wish to make any upgrades - you might want to start with the graphics card. The warranty is three years long but includes no onsite cover.



## >> Buying advice

- **Processor** You're not going to get the fastest processors at this price, but many of today's chips are powerful enough to make light work of standard applications. Most of this month's manufacturers have gone for the more powerful Athlon 64 and Sempron processors. You won't see many Pentium 4s at this price as they aren't exactly cheap, but you might find the odd one at 3GHz.

- **Memory** 512MB of DDR RAM is the standard offering in the Superbudget category. Remember that if you don't think this is enough, you can always buy more at a later date. Check you're getting the full benefit of your memory - some onboard graphics controllers need to use system memory, which will inevitably slow the system down. Try to find PC3200 modules - again, this is a fairly standard offering, but some PCs opt for the old-fashioned PC2700.

- **Storage** You can't have too much. Digital media files such as video and music will quickly fill a reasonably sized hard drive, so buy the biggest you can. It helps to keep large files archived on DVD, so look for a DVD burner - dual-format drives are the best. Look for a drive that can write to -R/+R at a rate of at least 12-speed; 16-speed is better. If you want to use the double-capacity DL (dual layer) format, look for no less than quad-speed.

- **Monitor** Compromises have to be made to keep the price down and the monitor is often where these start. Remember: this is the part of the PC that you're going to be spending your time looking at. Flat-panel models are becoming more common at this price, although they won't be more than 17in and are more likely to be 15in. 17in CRTs are available as well, and while they'll take up more space, in general they will give a better picture.

- **Graphics card** Gamers aren't likely to buy a sub-£500 PC. Frame rates in our graphics tests across the board were horrifically slow, with only a couple of exceptions. If you're a game player then it's worth saving up for something better, or you could ask the individual vendor about upgrading the specifications. If good graphics performance isn't your main concern then a card like the Radeon X700 Pro is likely to be the best bet.
- **Sound card and speakers** You're unlikely to get a standalone sound card at this price as it is an area in which vendors can cut costs. Most motherboards have decent built-in audio chips that can handle six-channel sound, but to get the best out of them you'll need a 5.1 speaker system. Unfortunately, you're unlikely to get anything better than a 2.1 system in this category - indeed, you'll be lucky to get a subwoofer at all.



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Onspeed reported over 250,000 users in the last year alone, it really is that good, and with a 14-day money back guarantee there's absolutely no risk.

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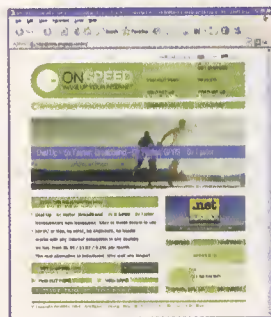
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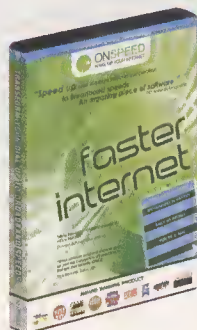
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## Top 10 Budget PCs

PCADVISOR  
BEST BUY

1		<b>Mesh Matrix Titan BPC</b> 0870 046 4747 www.meshcomputers.com Last month 1	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 3-year onsite warranty</li> <li>• First review Jun 05</li> </ul>
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Processor type Processor speed	RAM Hard disk capacity	Motherboard USB ports	Monitor Dot pitch Maximum resolution@75Hz
AMD Athlon 64 3800+ 2.4GHz	1GB DDR RAM 200GB serial ATA	Asus A8N SLI Oeluxe P3 6	17in ViewSonic VE710 flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		100	
2		<b>Vantage Nightwind Gaming System</b> 0870 744 2468 www.vantagedirect.co.uk Last month 2	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 1-year onsite, 3-year return-to-base warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	1GB DDR RAM 250GB serial ATA	Asus A8N SLI Oeluxe 10	17in LG Flatron L1730B flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		96	
3		<b>Evesham Axis</b> 0870 160 9500 www.evesham.com Last month 3	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 2-year onsite, 1-year return-to-base warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	1GB DDR RAM 250GB serial ATA	MSI K8N Neo 4 6	17in ViewSonic VX715 flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		93	
4		<b>Watford Aries PowerXS 6421</b> 0870 027 0900 www.ariespc.com Last month 4	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 1-year onsite, 4-year return-to-base warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	512MB DDR RAM 160GB serial ATA	MSI RS480M2-IL 6	17in Sony SDM-S73 flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		90	
5		<b>Carrera Octan Ultimate J3SLI</b> 0871 222 3456 www.carrerassc.co.uk Last month 5	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 3-year onsite warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	1GB DDR RAM 200GB serial ATA	MSI K8N SLI Platinum 6	19in Sharp LL-191A flat-panel 0.294mm 1,280x1,024
>> WorldBench 5		92	
6		<b>Watford Aries Performa 9935</b> 0870 027 0900 www.ariespc.com Last month 6	<ul style="list-style-type: none"> <li>• £990 inc VAT</li> <li>• 1-year onsite, 4-year return-to-base warranty</li> <li>• First review Mar 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	512MB DDR RAM 160GB serial ATA	MSI K8N Neo 2 Platinum B	19in Sharp LL-T1901 flat-panel 0.294mm 1,280x1,024
>> WorldBench 5		94	
7		<b>Packard Bell iMedia 601 CTX</b> 0870 901 3000 www.packardbell.co.uk Last month 7	<ul style="list-style-type: none"> <li>• £699 inc VAT</li> <li>• 1-year onsite warranty</li> <li>• First review Jun 05</li> </ul>
Intel Pentium 4 530 3GHz	512MB DDR RAM 200GB serial ATA	Gigabyte GA-8I915-PM 6	17in Packard Bell VT700 flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		72	
8		<b>Centurica Power P3564PCA</b> 0870 755 0550 www.centurica.com Last month 8	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 1-year return-to-base, 2-year labour-only warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	1GB DDR RAM 200GB serial ATA	Asus ABV Oeluxe 6	17in Iiyama ProLite E435S flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		90	
9		<b>Gladiator Trident 64 3500 Dual Core Gaming</b> 0845 644 4666 www.gladiatorcomputers.com Last month 9	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 1-year return-to-base warranty</li> <li>• First review Jun 05</li> </ul>
AMD Athlon 64 3500+ 2.2GHz	1GB DDR RAM 160GB serial ATA	Gigabyte GA-K8NP-SLI 6	19in Hyundai ImageQuest 0995 0.25mm 1,600x1,200
>> WorldBench 5		93	
10		<b>Gladiator Retarius 6800 SIG</b> 0845 644 4666 www.gladiatorcomputers.com Last month 10	<ul style="list-style-type: none"> <li>• £999 inc VAT</li> <li>• 1-year return-to-base warranty</li> <li>• First review Mar 05</li> </ul>
AMD Athlon 64 3400+ 2.4GHz	1GB DDR RAM 250GB serial ATA	Asus K8N 8	17in Olifusion EA17 flat-panel 0.264mm 1,280x1,024
>> WorldBench 5		98	

>> Buying advice  
Budget PCs



With its solid performance, software bundle and warranty the Mesh Matrix Titan BPC hangs on to top spot

• **Processor** We are getting a few glimpses of Intel's Pentium 4, but AMD's Athlon 64s make economic sense for manufacturers to bundle with their PCs. We've been getting phenomenal scores from the 3400+ and 3500+ versions, but it'll be worth waiting to see whether our new testing software will allow the Pentium 4s to recover lost ground.

• **Memory** Settle for no less than 512MB, although 1GB is preferable. DDR RAM is now the standard offering in all PCs, but make sure you get at least 400MHz memory modules, also known as PC3200.

• **Storage** It's unbelievable that 120GB is now considered a small amount of storage space but look at our chart and you'll see the absolute minimum is 160GB, with a number of manufacturers stretching to 200GB or 250GB. If you want rapid transfer rates, insist that the PC is serial ATA rather than ultra ATA (or Pata). If you're lucky, you can find a system with two hard drives set up in a Raid configuration. DVD writers are common now, but there are several competing DVD-writing standards so look for a multi-format drive. If you can, try and get a model capable of



Graphics card maker Graphics chip Memory/interface	Sound card Speakers Subwoofer	Max DVD speeds Max CD speeds	Operating system, software and extras	Comments
ATI Radeon X800 128MB/PCI Express	onboard Realtek 5 x Creative Inspire 58DD yes	16x/16x/16x/2.4x/8x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, MS Works 8.0, Pinnacle Studio 9 SE, CyberLink Suite	A great performer, the Mesh Matrix Titan BPC is backed up by a good warranty and software bundle. Its WorldBench 5 performance was impressive, and the 2DDGB Maxtor hard drive provides plenty of storage space. The ViewSonic VE71D is a solid screen, but the onboard Realtek audio controller is far from stunning. At least in the 5.1 Creative Inspire 58DDs Mesh has supplied a good set of speakers.
Gigabyte GeForce 6600 GT 256MB/PCI Express	onboard Realtek 6 x Creative Inspire 670D yes	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Ability Office, games bundle	The Nightwind's Athlon 64 3500+ processor and 1GB of DDR RAM helped push it to a WorldBench 5 score of 96, and it shows a fair turn of speed when it comes to graphics, achieving good frame rates in Doom 3 and Halo. There's a generous hard drive and a dual-layer DVD writer, while the attractive LG Flatron L173DB is a decent flat-panel. This pleasing system is topped off by a four-year warranty.
Sapphire Radeon X800 256MB/PCI Express	onboard Realtek 2 x Altec Lansing 21DD yes	16x/16x/16x/2.4x/8x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, eTrust AntiVirus	The Axis is solid but never really catches fire. Its most notable component is the 250GB hard drive - this should be enough even for those with a large library of media files. An Athlon 64 3500+ running at 2.2GHz seems to be standard at this price, while a full 1GB of DDR RAM is generous but not uncommon. Unfortunately, the speakers aren't really good enough, and more software would have been nice.
ATI Radeon X800 XL 256MB/PCI Express	onboard Realtek 5 x Altec Lansing 5100 yes	16x/16x/16x/4x/8x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home	Strong on graphics, backup and design, the Aries, despite an average performance in the WorldBench 5 tests, is a very good system. The optical drive is a standout, and the combination of Sony's SDM-S73 TFT and the 256MB ATI Radeon X800 XL PCI Express graphics card is a winner. The frame rates produced by the card are stunning and the image is decent - in spite of the slightly inconsistent focus.
nVidia GeForce 6600 GT 256MB/PCI Express	onboard Realtek 5 x Creative SB556D yes	16x/16x/16x/2.4x/8x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home	The Dctan Ultimate J3SL1 from Carrera was found slightly wanting in terms of speed, with a moderate WorldBench score of 92. But, with an Athlon 64 3500+ processor running at 2.2GHz, PCI Express architecture and 1GB of DDR RAM, the hardware doesn't lack chutzpah. On the whole the Carrera is a well put together PC, with an excellent flat-panel and plenty of space for upgrades.
MSI nVidia GeForce 6800 128MB/AGP	onboard Realtek 2 x Altec Lansing VS-2121 yes	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Ability Office, Panda AntiVirus Titanium, CyberLink PowerDVD	When we first reviewed this PC it was the glorious 19in flat-panel that caught our eye. However, the performance isn't quite as good - a WorldBench score of 94 is not outstanding. Part of this is down to the Performa's mere 512MB of DDR RAM. The 160GB hard drive is also comparatively miserly. Graphics performance is very good and the build quality, software bundle and warranty all still impress.
ATI Radeon X60D 256MB/PCI Express	onboard Realtek 2 x Diamond Storm no	16x/8x/16x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, 6-in-1 card reader	At first glance, Packard Bell's iMedia 6D1 CTX looks to be some way off the pace in terms of performance and specifications. But check the price tag: this PC costs £291 less than any other system in the chart, while boasting a 2DDGB hard drive and a dual-layer DVD writer. On the other hand, a WorldBench score of 72 suggests the 6D1 CTX will struggle with all but the simplest everyday tasks.
nVidia GeForce 6600 GT 128MB/AGP	onboard Realtek 2 x Labtec Pulse 385 yes	16x/16x/16x/6x/6x/6x/8x (DVD-ROM/-R/+R/+R DL/- +R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Open Office, 6-in-1 card reader	Pioneer's DVR-1D9 DVD writer is the one truly outstanding feature of the Power P3564PCA. Not only does it write to all the standard formats, but it supports the dual-layer versions of both DVD-R and DVD+R. Allowing you to copy 8.5GB at six-speed is quite exceptional. After this, the Centurica's shot at greatness fizzles out slightly. The GeForce 6600 GT graphics card is solid, and performance is modest.
nVidia GeForce 6600 GT 256MB/PCI Express	onboard Realtek 2 x Creative Inspire 29DD yes	16x/16x/16x/6x/8x/4x/5x (DVD-ROM/-R/+R/+R DL/-RW/+RW/-RAM) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, games bundle	It may be in ninth place, but there's plenty to commend the Trident. To appeal to gamers, there's a 19in CRT monitor that stretches to a resolution of 1,600x1,200, and a dual-core GeForce 6600 GT graphics card that delivers some astonishing frame rates: 97.4fps in Doom 3 at a resolution of 1,024x768. However, a gaming PC needs a better sound system than this, and there's a lack of baseline speed.
nVidia nVidia GeForce 6800 LE 128MB/AGP	onboard Realtek 7 x Creative Inspire T79D0 yes	16x/16x/16x/4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works 7.D, Ahead Nero Suite	The Retalius is incredibly quiet - the SIG tag stands for 'silence is golden' - and works well for everyday PC tasks. Its WorldBench score of 99 remains impressive, and the quad-speed DVD+R DL facilities are good. But not all of the components are in the same class: the GeForce 6800 chip produced very average game frame rates, the 17in flat-panel lacks finesse and the warranty is - at this price - abysmal.

16-speed DVD+R performance. Many drives also have +R DL support. This allows you to store 8.5GB on one disc, but you'll need quad-speed to make this even vaguely usable.

• **Monitor** Flat-panel displays are now virtually obligatory at this level, but they vary wildly in quality. 17in models are the most likely, although if you shop around, there's a fair chance you'll get 19in. Either way, flat-panel specifications are lower than those of CRT monitors so expect a resolution of 1,280x1,024. Better flat-panels will have a DVI port and you may also get pivot

facilities or a height-adjustable stand. If you're getting a CRT monitor, make sure it's 19in, with a resolution of 1,600x1,200 and a dot pitch of 0.25mm or less.

• **Graphics card** The big consideration here is the interface the graphics card uses. The older AGP connection is becoming obsolete, so PCI Express is definitely the way to go. At the £1,000 price point, you might be able to find a top-notch graphics chip such as the X800 XT. A far more common option, though, is the nVidia GeForce 6600 GT. Offering strong

frame rates for a modest outlay, this makes a good compromise.

• **Sound card and speakers** Onboard or integrated sound has come on in leaps and bounds with support for 7.1 channel sound, but it's still no match for a decent sound card. Sadly, few £1,000 PCs come with a good sound card (such as Creative's excellent Audigy2), but have a hunt around and you may be able to dig something up. If audio is really important to you, don't stint on the speakers. Look for a set of 5.1-channel speakers as a minimum, although 6.1 or 7.1 sets are better still.

PCADVISOR  
TEST  
CENTRE

## Top 10 Power PCs

PCADVISOR  
BEST BUY



### Carrera Extreme SLI-4000-08

0871 222 3456  
www.carrerassc.co.uk  
Last month 1

- £1,499 inc VAT
- 3-year onsite, 2-year return-to-base labour warranty
- First review Jul 05

Processor type  
Processor speed

RAM  
Hard disk capacity

Motherboard  
USB ports

Monitor  
Dot pitch  
Maximum resolution@75Hz

>> WorldBench 5

105

PCADVISOR  
RECOMMENDED



### Mesh Matrix 4000+PPC

0870 046 4747  
www.meshcomputers.com  
Last month 3

- £1,299 inc VAT
- 3-year onsite warranty
- First review Apr 05

>> WorldBench 5

105

PCADVISOR  
RECOMMENDED



### Mesh Matrix Fireblade SLI PPC

0870 046 4747  
www.meshcomputers.com  
Last month 2

- £1,299 inc VAT
- 3-year onsite warranty
- First review Jul 05

>> WorldBench 5

96

PCADVISOR  
RECOMMENDED



### Cube247 Proxima

0870 242 1179  
www.cube247.co.uk  
Last month 4

- £1,999 inc VAT
- 3-year return-to-base labour warranty
- First review Jul 05

>> WorldBench 5

121



### Evesham Axis Decimator X

0870 160 9500  
www.evesham.com  
Last month 5

- £1,499 inc VAT
- 2-year onsite, 1-year return-to-base warranty
- First review Jul 05

>> WorldBench 5

99



### Watford Aries PowerXS Titanium

0870 027 0900  
www.ariespc.com  
Last month 6

- £1,499 inc VAT
- 5-year return-to-base labour warranty
- First review Jul 05

>> WorldBench 5

101



### Mesh Matrix 64 3500+ PPC

0870 046 4747  
www.meshcomputers.com  
Last month 7

- £1,174 inc VAT
- 2-year onsite warranty
- First review Oct 04

>> WorldBench 5

97



### NetHighStreet Net PC Advisor Power PC

0870 777 5252  
www.nethighstreet.com  
Last month 8

- £1,400 inc VAT
- 2-year return-to-base warranty
- First review Jul 05

>> WorldBench 5

95



### Evesham Axis Enforcer

0870 160 9500  
www.evesham.com  
Last month 9

- £1,599 inc VAT
- 2-year onsite, 1-year return-to-base warranty
- First review Apr 04

>> WorldBench 5

101



### Watford Aries PowerXS 6610

0870 027 0900  
www.ariespc.com  
Last month 10

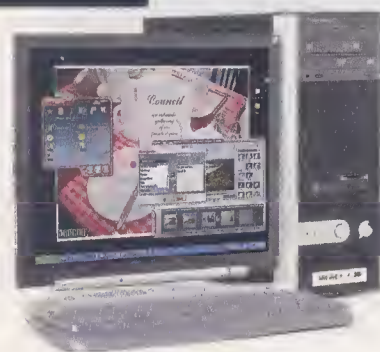
- £1,499 inc VAT
- 1-year onsite, 4-year return-to-base warranty
- First review Apr 04

>> WorldBench 5

105

>> Buying advice  
Power PCs

Sensibly priced with an excellent blend of components. Who could ask for more than the Carrera?



• **Processor** The lack of any Intel Pentium 4s suggests that AMD's Athlon 64s make more economic sense for manufacturers. We've been getting great scores from them - despite them being up to 1GHz slower on some clockspeeds they really perform well. But accept no less than a 4000+.

• **Memory** You should settle for no less than 1GB - but only one manufacturer was brave enough to add anything higher this month. We're also seeing the dual-channel DDR 400 memory as standard, so check that it's part of your potential purchase.

• **Storage** It's almost unbelievable that anything less than 250GB is now considered a paltry amount of storage space, but look at our chart and you'll see most manufacturers opting for 300GB or more - a few PCs even feature a massive 500GB.

Some vendors are now bundling twin hard drives in Raid configurations for quicker access to data and we're also seeing the addition of serial ATA cabling for rapid transfer rates. This looks set to make ribbon ultra ATA cabling obsolete.

Cover backup with at least a 40/32/10-speed (read/write/rewrite)



Graphics card maker Graphics chip Memory/interface	Sound card Speakers Subwoofer	Max DVD speeds Max CD speeds	Operating system, software and extras	Comments
MSI nVidia GeForce 6800 GT 256MB/PCI Express	Creative Audigy2 ZS 7 x Creative Inspire T79DD yes	16x/8x/16x/2.4x/4x/4x (DVO-ROM/-R/+R/+R DL/-RW/+RW) 4Dx/48x/24x (CD-RDM/-R/-RW)	Windows XP Home, Microsoft Works Suite, Roxio Easy Media, 7-in-1 flash memory reader	Carrera's Extreme SLI-4000-0B lands the top slot with a blend of perfectly balanced components backed up by a worry-free five-year warranty. The Extreme is sensibly priced and produces blistering performance. Its visual setup is great, combining nVidia's excellent 256MB GeForce 6800 GT with a 19in flat-panel from Sharp that's, er, pretty damn sharp. And thanks to the Audigy2 ZS sound card and Creative's 71 Inspire 7900 speakers, this PC also offers one of the best aural feasts in the chart.
ATI ATI Radeon X800 Pro 256MB/AGP	Creative Audigy2 ZS 7 x Creative Inspire T79DD yes	16x/8x/16x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP, Microsoft Works 8.0, Pinnacle Instant CD/OVO, 8-in-1 flash memory reader, Pinnacle Studio 9.0	A price drop allows this venerable ex-Best Buy to keep pace with the new entries. On top of a high-end processor and 1GB of DDR RAM, the Matrix 4D00+PPC also sports the same great 19in ViewSonic VX912 flat-panel as Mesh's brand-new system. ATI's Radeon X800 Pro may not be the fastest graphics chip, but the Mesh still managed very good frame rates in our games suite. Its cramped layout and lack of PCI Express capabilities rankle, but the Matrix remains a well-specified system with raw speed.
nVidia 2 x nVidia GeForce 6600 GT SLI 2 x 128MB/PCI Express	onboard nForce 7 x Creative Inspire T79DD yes	16x/8x/16x/2.4x/4x/4x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CO-ROM/-R/-RW)	Windows XP Home, Microsoft Works 8.0, MS Office (60-day), 7-in-1 flash memory reader	Proving that power isn't everything the Matrix managed only 96 points in our WorldBench 5 tests. So why does it grab a Recommended award? Only one other PC works as well as an all-rounder, and none offers the same value for money. Also, the Matrix Fireblade SLI PPC is one of the first test systems to bundle two graphics cards in a dual-SLI configuration - a setup that produces sterling results. With a solid onsite warranty and a comprehensive software bundle this is a great PC.
Sapphire ATI Radeon X850 XT 256MB/PCI Express	Creative Audigy2 ZS 5 x Creative I-Trigue 5600 yes	16x/16x/16x/4x/4x/6x/8x (DVD-RDM/-R/+R/+R OL/+R DL/-RW/+RW) 48x/48x/24x (CD-RDM/-R/-RW)	Windows XP, Norton Internet Security 2005, Nero 6.D, CyberLink Power2Go, 7-in-1 flash memory reader	Relentlessly powerful, the Proxima has sufficient specifications and features to make the competition blush. Its WorldBench 5 score of 121 makes the Proxima the most powerful PC we've ever put through our Test Centre. Backup is provided by the fastest dual-format, dual-layer OVO writer available. And we were knocked out by the beautiful 19in flat-panel. We'd like to have seen an onsite offering on the warranty, and the case is only standard-issue. Now, where can we find £1,999?
ATI ATI Radeon X850 Pro 256MB/PCI Express	Creative Audigy2 ZS 7 x Creative Inspire 7700 yes	16x/8x/16x/2.4x/4x/4x (DVD-ROM/-R/+R/+R OL/-RW/+RW) 48x/48x/24x (CD-RDM/-R/-RW)	Windows XP Home, Microsoft Works 7.0, Roxio Easy Media Creator 7.0, eTrust EZ AntiVirus	Evesham always supplies us with robust systems and the Axis Oecimator X continues in that tradition - but other PCs offer do better value for money. Good points? ViewSonic's popular 19in VX912 flat-panel combines with ATI's great 256MB Radeon X850 Pro to make audio and visual entertainment a pleasure. But the 250GB hard drive is as small as it gets at this price. The Oecimator X has a sound software bundle and a speedy dual-layer OVD writer - it's a pretty solid PC, but there are better deals.
ATI ATI Radeon X8DD XT 256MB/PCI Express	Creative Audigy2 ZS 5 x Creative S85560 yes	16x/8x/16x/2.4x/4x/4x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 40x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works Suite 2005, Panda AntiVirus, games bundle, 7-in-1 flash memory reader	The first thing we noticed about the Aries PowerXS Titanium was how much of it there is. This provides ample upgrade room, but there are a few odd design flaws. For instance, you have to open the left-hand side of the case to access the two 200GB hard drives, but everything else is on the other side. The budget motherboard doesn't offer an SLI mode for graphics, and the 5.1 speakers fail to do justice to the Audigy2 ZS sound card. However, everything else about the PowerXS is classy.
ATI ATI Radeon X8DD XT 256MB/AGP	Creative Audigy2 ZS 7 x Creative Inspire T79DD yes	16x/8x/16x/2.4x/4x/4x (DVD- RDM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CD-ROM/-R/-RW)	Windows XP Home, Microsoft Works 8.0, Pinnacle Instant CO/ DVD, Pinnacle Studio 9.0 SE	Mesh's high profile in our charts can be explained by the company's welcome policy of dropping the price and improving the specifications of PCs whenever possible. At £1,174, the 3500+ is the cheapest system in the chart. It's finally starting to show its age, however, struggling to break in to the top five in our games tests. Otherwise, there's not much to grouse about. The OVO writer may have only 2.4-speed OVO+R OL, but you're still getting a lot of white-hot hardware for a relatively modest outlay.
nVidia 2 x nVidia GeForce 6600 GT SLI 2 x 128MB/PCI Express	Creative Audigy2 ZS 7 x Creative Inspire T79DD yes	16x/16x/16x/4x/6x/8x (DVD-ROM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CO-ROM/-R/-RW)	Windows XP Home, 7-in-1 flash memory reader	This is one of the cheaper systems in the chart, but that doesn't make it great value. Credit where it's due - the OVD drive provides dual-layer speeds matched only by Cube247's £1,999 system, we were impressed to see two GeForce 6600 GT graphics cards and the audio setup is good. Unfortunately, this is the least powerful PC here. You'll soon get sick of looking at the underwhelming 19in Philips 190S5 flat-panel, the 200GB hard drive is below average and peripherals are on the cheap side.
ATI ATI Radeon X850 XT 256MB/PCI Express	Creative Audigy2 ZS 7 x Creative Inspire 7700 yes	16x/8x/16x/2.4x/4x/4x (DVD-RDM/-R/+R/+R DL/-RW/+RW) 48x/48x/24x (CO-ROM/-R/-RW)	Windows XP Media Center 2DD5, Microsoft Works 8.0, eTrust EZ AntiVirus, Pinnacle Instant CO/OVO, Pinnacle Studio	The problem with the Evesham is that some of its components are a little behind the times, while the price tag is a bit steep. The Enforcer's Athlon 64 4000+ processor pumped out a good WorldBench 5 score of 101, but the 1GB of PC3200 DDR RAM and 250GB Maxtor drive are only standard - not ideal for a digital media hub. The ViewSonic flat-panel impressed us with its response rate, but for image quality it's no match for the likes of Sharp's LL-191A. Nor does it have the same expansive screen.
ATI ATI Radeon X850 XT 256MB/PCI Express	onboard Realtek 5 x Altec Lansing 5100 yes	16x/8x/16x/2.4x/4x/4x (DVD-RDM/-R/+R/+R OL/-RW/+RW) 48x/48x/24x (CO-RDM/-R/-RW)	Windows XP Home, Ability Office 4, Panda Titanium AntiVirus 2D04, CyberLink PowerDVD	Aries' PowerXS 661D has some intriguing features - most notably Watford's 'My Other Computers' facility and its two Raid-configured 160GB hard drives. This allows the hard drive to be partitioned into two - each with its own OS. It's useful if you want to keep the kids out of the family accounts. Despite only having 512MB of DDR RAM, the WorldBench 5 score of 105 is fast. Games speed wasn't as emphatic, the flat-panel is a disappointment and we weren't impressed with the onboard sound.

CD-RW drive, but look for higher-end 48/48/24 or 52/52/24-speed drives. DVD writers are now obligatory at this price but there are several competing standards, so ask for a multi-format drive.

If you can, try to get a drive capable of 16-speed DVD+R. Many drives also have +R DL support. This allows you to store 8.5GB on one disc, but you'll need quad-speed to make dual layer viable.

• **Monitor** Look for a 19in screen that offers a resolution of 1,600x1,200 and a dot pitch of 0.25mm or less. Flat-panel displays

are increasingly common but can vary wildly in quality - look for 19in with a DVI (digital visual interface) that can support a resolution of 1,280x1,024 and only drop to 17in if the image quality is worth it.

• **Graphics card** The choice is really between the ATI Radeon X800/X850 and the nVidia GeForce 6800. The X850 XT PE is probably the fastest card at the moment, but the X800 Pros can still produce capable performance - and save you a few pounds in the process.

The GeForce 6800 Ultra, in particular, produces excellent frame

rates. This month we've also seen a lot of PCI Express graphics cards, which provide a bigger 16X bandwidth so they should be comfortably outperforming the 8X AGP.

• **Sound card and speakers** Onboard or integrated sound has come on in leaps and bounds with support for 7.1 channel sound, but it's still no match for a decent sound card. Hunt around for a PC with Creative's excellent Audigy2 card.

Add some 5.1 channel speakers at the very least - at this price point you really should be looking for 6.1 or 7.1 channel support.

**PCADVISOR  
TEST  
CENTRE**






**Top 10  
Power notebooks**

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**Top 10  
Power notebooks**




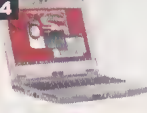

			Processor Dual-speed	USB ports FireWire ports	RAM Hard disk capacity	Dimensions (wxdxh) Weight	Wireless facilities	
<b>1</b>		<b>Evesham Voyager C510</b> 0870 160 9500 www.evesham.com New	• £1,056 inc VAT • 1-year onsite, 2-year collect-and- return warranty • First review Jul 05	1.84GHz Intel Pentium M 750 SpeedStep	3 1	512MB DDR RAM 80GB	357x276x35mm 2.9kg	802.11a/b/g
				>> WorldBench 5		88		
<b>2</b>		<b>HP Compaq nx8220</b> 0870 010 4320 www.hp.com/uk New	• £1,292 inc VAT • 1-year return-to- base warranty • First review Jul 05	2GHz Intel Pentium M 76D SpeedStep	3 1	1GB DDR RAM 80GB	356x264x35mm 2.8kg	BD2.11a/b/g
				>> WorldBench 5		87		
<b>3</b>		<b>Hi-Grade Notino C7000</b> 020 8532 6120 www.higrade.com Last month 1	• £1,233 inc VAT • 2-year collect-and- return warranty • First review Apr 05	2GHz Intel Pentium M 755 SpeedStep	3 1	1GB DDR RAM 80GB	326x270x32mm 2.7kg	802.11b/g
				>> WorldBench 5		90		
<b>4</b>		<b>AJP D900T</b> 020 8208 9710 www.ajp.co.uk Last month 2	• £1,526 inc VAT • 1-year return-to- base, 2-year labour only warranty • First review May 05	3.4GHz Intel Pentium 4E no	4 2	1GB DDR RAM 80GB	397x298x50mm 5.2kg	802.11b/g, Bluetooth
				>> WorldBench 5		83		
<b>5</b>		<b>Evesham Voyager X5</b> 0870 160 9500 www.evesham.com Last month 3	• £1,249 inc VAT • 1-year onsite, 2-year return-to- base warranty • First review Apr 05	2.1GHz Intel Pentium M 765 SpeedStep	3 1	1GB DDR RAM 80GB	354x250x32mm 2.9kg	802.11b/g
				>> WorldBench 5		86		

**PCADVISOR  
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**Top 10  
Budget notebooks**

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BEST BUY

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PCADVISOR TEST CENTRE		Top 10 Budget notebooks		Processor Dual-speed	USB ports FireWire ports	RAM Hard disk capacity	Dimensions (wxdxh) Weight	Wireless facilities	
1		<b>HP Compaq nx6110</b> 0870 010 4320 www.hp.com/uk New	<ul style="list-style-type: none"><li>• £469 inc VAT</li><li>• 1-year parts and labour warranty</li><li>• First review Jul 05</li></ul>	1.4GHz Intel Celeron M 34D SpeedStep	2 1	256MB DDR RAM 40GB	329x267x30mm 2.7kg	802.11b/g	
				>> WorldBench 5		62			
2		<b>Tiny MediaBook U64-3700+ E01315</b> 01252 777 555 www.tiny.com New	<ul style="list-style-type: none"><li>• £899 inc VAT</li><li>• 1-year return-to-base warranty</li><li>• First review Jul 05</li></ul>	2.41GHz Mobile AMD Athlon 64 3700+ PowerNow	3 1	1GB DDR RAM 80GB	332x285x37mm 3.6kg	802.11b/g	
				>> WorldBench 5		96			
3		<b>MV Mobeus 1.8</b> 0871 855 4669 www.go-mv.com Last month 1	<ul style="list-style-type: none"><li>• £899 inc VAT</li><li>• 1-year parts and labour, 2-year labour only warranty</li><li>• First review Apr 05</li></ul>	1.8GHz Intel Pentium M 745 SpeedStep	3 1	512MB DDR RAM 40GB	293x230x32mm 2.1kg	802.11b/g	
				>> WorldBench 5		82			
4		<b>AJP G220</b> 020 8208 9710 www.ajp.co.uk Last month 2	<ul style="list-style-type: none"><li>• £770 inc VAT</li><li>• 1-year parts and labour, 2-year labour only warranty</li><li>• First review Apr 05</li></ul>	1.5GHz Intel Celeron M 330 SpeedStep	3 1	256MB DDR RAM 40GB	320x242x28mm 2.1kg	802.11b/g	
				>> WorldBench 5		60			
5		<b>Sony Vaio VGN-FS115B</b> 020 7365 2932 www.sonystyle.co.uk Last month 3	<ul style="list-style-type: none"><li>• £999 inc VAT</li><li>• 1-year collect-and-return warranty</li><li>• First review Jun 05</li></ul>	1.6GHz Intel Pentium M 730 SpeedStep	3 1	512MB DDR RAM 60GB	364x265x36mm 2.9kg	BD2.11b/g	
				>> WorldBench 5		72			

Functional,  
portable and  
so affordable.  
The HP  
Compaq  
nx6110 is a  
business  
workhorse



**>> Buying advice**

**Notebooks**

If you're planning on mainly using your notebook at home plugged in to the mains, get a desktop-replacement system. These often use processors designed for desktop PCs and feature larger screens, but they can have poor battery life. If you want something to use on the move get an ultra-portable

device. They are smaller, lighter and often offer better battery life. Bear in mind, though, that fewer screen inches means they aren't as suitable for long work sessions.

• **Processor** Desktop-replacement models tend to use Intel Pentium 4 or 4E chips - you can get anything up to a 3.7GHz processor at the moment, even in the Budget category. There are also two mobile chips available









## Top 10 Budget digital cameras

PC ADVISOR  
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**1** Canon PowerShot A510  
0870 514 3723  
www.canon.co.uk  
Last month 1

- £199 inc VAT
- 1-year warranty
- First review May 05

Mega pixel rating	Optical zoom	Max aperture	File format	Storage media type	High/low resolution shots	Dimensions (wxdxh)	Software includes
Max resolution	Digital zoom			Battery/rechargeable		Weight	
3.2Mp 2,048x1,536	4x 3.2x	f2.6- f5.5	JPG	16MB MMC 2 x alkaline/no	8/137	91x38x64mm 180g	ArcSoft Photo StudioZoom

The A510 is a worthy successor to the A75. It's packed with features, but has a point-and-shoot simplicity that's ideal for novices as well as an attractive price tag and design. There's a good 4x optical zoom and the 1.8in LCO screen is nice and clear. On the down side, there's support for only two AA batteries and it comes with alkaline cells. You'll really want rechargeable ones.

PC ADVISOR  
RECOMMENDED



**2** Olympus Camedia C370 Zoom  
0800 072 0070  
www.olympus.co.uk  
Last month 2

- £120 inc VAT
- 1-year warranty
- First review May 05

3.2Mp 2,048x1,536	3x 4x	f2.9- f5.0	JPG	12MB internal 2 x alkaline/no	5/68	88x39x63mm 140g	Olympus Master Utilities
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At a mere £120, the C370 Zoom offers good value, and makes the perfect choice for first-time buyers. It's simple to operate and takes clean, vivid shots. We'd like to have seen a lithium-ion battery instead of two AA alkaline cells and the zoom motor is on the noisy side, but set those faults against the sharp detail and a decent movie mode and you'll see that this camera is worth it.



**3** Fujifilm FinePix E500 Zoom  
020 7586 1477  
www.fujifilm.co.uk  
Last month 3

- £180 inc VAT
- 1-year warranty
- First review Feb 05

4.1Mp 2,304x1,728	3.2x 3.6x	f2.9- f5.5	JPG	16MB xD-Picture 2 x alkaline/no	7/122	102x33x61mm 170g	FinePix Viewer, ImageMixer VC02
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A great combination of value for money and a surprisingly full feature set, the E500 is so easy to use you don't even need to read the manual. It's ergonomically satisfying to use - as long as you're not left-handed - and is blessed with a large, clear 2in LCO. Hardware buttons have been kept to a minimum and praise goes to Fuji for offering full manual exposure. Movie playback is passable.



**4** Konica Minolta Dimage Z10  
020 8751 6121  
www.konicaminolta.com/dimage  
Last month 4

- £170 inc VAT
- 1-year warranty
- First review Nov 04

3.2Mp 2,048x1,536	8x 4x	f3.2- f3.4	JPG	16MB Secure Digital 4 x alkaline/no	17/100	109x82x94mm 300g	Dimage Viewer
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The Konica Minolta looks, and in some ways performs, like a far more up-market device. What really marks it out is the 8x zoom, an outstanding feature that offers great possibilities for long-range shots and getting the framing of your pictures just right. While the 3.2Mp CCO is comparatively modest, the Z10's colours and definition are impressive, and it has a decent feature set.



**5** Benq DC S40  
01442 301 000  
www.benq.co.uk  
Last month 5

- £149 inc VAT
- 1-year warranty
- First review May 05

4Mp 2,848x2,136	3x 4x	f2.8- f4.8	JPG	14MB internal 1 x lithium/yes	6/51	96x40x63mm 180g	ArcSoft Utilities, Benq O-Link
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The DC S40 is the only model in the chart with a rechargeable lithium-ion battery and, perhaps uniquely, you can fill it with juice via the USB cable while it's attached to a PC. The S40 includes an FM radio and MP3 player and the button layout is simple. So what's not to like? Well, the blurry image quality separates it from the competition, the zoom motor is deafening, and the LCO is only passable.

## Top 10 Intermediate digital cameras

PC ADVISOR  
BEST BUY



**1** Konica Minolta Dimage A200  
020 8751 6121  
www.konicaminolta.com/dimage  
Last month 1

- £550 inc VAT
- 1-year warranty
- First review May 05

Megapixel rating	Optical zoom	Max aperture	File format	Storage media type	High/low resolution shots	Dimensions (wxdxh)	Software includes
Max resolution	Digital zoom			Battery/rechargeable		Weight	
8Mp 3,264x2,448	7x 4x	f2.8-f3.5	JPG, RAW	None supplied 1 x lithium/yes	N/A (2/98 on 16MB card)	114x80x15mm 579g	VideoStudio 8.0 Dimage Viewer

If you want to explore what's possible with digital photography we can heartily recommend this beautifully made model. The images were superbly detailed, even in low light, and the colour palette was spot on in all photographic conditions. It's also one of the first cameras we've seen that supports an 800x600 resolution movie mode. Expensive but worth every penny.

PC ADVISOR  
RECOMMENDED



**2** Olympus Camedia C-770 Ultra Zoom  
0800 072 0070  
www.olympus.co.uk  
Last month 2

- £380 inc VAT
- 1-year warranty
- First review Nov 04

4Mp 2,288x1,712	10x 4x	f2.8-f3.7	JPG, TIF	128MB xD-Picture 1 x lithium/yes	22/1,227	105x69x60mm 280g	Camedia Master 4.2
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Such is the brilliance of the Konica, even a £100 price cut isn't enough to propel the Olympus into first place. This is still a pretty juicy camera, however, and the price is a big surprise considering the wide array of features. Just as pleasing is the image quality - shots are enhanced by accurate colours, good detail and balanced exposure. Our only gripe is the eight-second power-up time.



**3** Fujifilm FinePix F810 Zoom  
020 7586 1477  
www.fujifilm.co.uk  
Last month 3

- £330 inc VAT
- 1-year warranty
- First review May 05

6.3Mp (12.3Mp Super CCD) 2,848x2,136	4x 6.3x	f2.8-f5.6	JPG, RAW	16MB xD-Picture 1 x lithium/yes	1/122	110x29x54mm 200g	ImageMixer VCD2
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The F810 Zoom's solid metal chassis is accommodately broad, as is the 16:9 widescreen LCD. This makes shot composition a dream. The fourth-generation Super CCD technology means the 6.3Mp CCO actually outputs 12.3Mp images at a resolution of 4,048x7,040. We found the zoom a bit clunky but image quality and responsive camera operations made up for this. Excellent value for money.



**4** Kodak EasyShare DX7590  
0870 243 0270  
www.kodak.co.uk  
Last month 4

- £350 inc VAT
- 1-year warranty
- First review May 05

5Mp 2,576x1,932	10x 3x	f2.8-f8.0	JPG	32MB internal 1 x lithium/yes	8/43	100x81x80mm 350g	Kodak EasyShare
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Image quality is fantastic on the DX7590; there's a good level of colour saturation and the shots are beautifully sharp. It's also one of the cheapest models in the chart. However, don't expect to rattle off several shots in succession: click five in a row on high res and by the fourth you'll have to wait an age. The DX7590 delivers quality photography for those with the patience to wait.



**5** Sony Cyber-shot DSC-T3  
0990 111 999  
www.sony.co.uk  
Last month 5

- £350 inc VAT
- 1-year warranty
- First review May 05

5.1Mp 2,592x1,944	3x 2x	f3.5-f5.6	JPG	32MB Memory Stick Duo Pro 1 x lithium/yes	12/196	90x18x60mm 171g	Pixelar Image Mixer
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The DSC-T3 feels a little overpriced and lacks Sony's usual flair and style. On the positive side this Cyber-shot uses a proprietary technology to get fast shot-to-shot time. It also has a massive and sharp 2.5in LCO display and, at 180 shots per charge, the battery life is impressive. But there's a distinct lack of manual features, not to mention a bizarre adapter connection.

### >> Buying advice Digital cameras

• **CCD** As the chart shows, 3-4Mp is the standard for a Budget camera - don't opt for anything less.

But size isn't everything and some manufacturers cut corners to make way for a large sensor.

• **Storage** Look for around 16MB. If you're going to be away from your PC a lot then it's a good idea to get yourself plenty of memory. And remember to factor the price of additional media in to the cost of your purchase - expect to pay around £25 for 64MB and around £50 for 128MB.

• **Peripherals** Look for rechargeable batteries and the necessary charger. It's also worth looking for

USB connectivity so you'll be able to download pictures in super-quick time. Some companies even produce cradles for their cameras with built-in printing and sharing capabilities.

• **Zoom** A zoom of at least 3x is standard in the Beginner chart these days, with some models stretching to 4x or even 8x. Be sure when evaluating this that you concentrate on the optical zoom. Most cameras will bolster the zoom lens with some software interpolation, but these often render grainy images and are no substitute for a good optical zoom.



PCADVISOR  
TEST  
CENTRETop 10 Professional  
digital cameras

Actual sensor	Optical zoom Equivalent range	Max aperture range	Viewfinder type LCD size	Shutter speeds	Storage media supplied memory	Closest focus distance (macro)	External flash
8Mp	n/a n/a	depends on lens	SLR 1.8in	1/4000 to 30 secs	Compact Flash none	depends on lens	Hotshoe
With the EOS-350D Canon has seriously raised the bar. The 350D is smaller, lighter, faster and higher-resolution than any of its predecessors. And it sports a number of additional enhancements: the handling is quick and image quality superb. Shots suffer from remarkably little noise and the 350D is capable of producing good-looking A3 prints. It's by far the best budget D-SLR yet.							
6.1Mp	n/a n/a	depends on lens	SLR 2in	1/4000 to 30 secs	SD none	depends on lens	Hotshoe
Already a respected name in this category, Canon has seriously raised the bar. The 350D is smaller, lighter, faster and higher-resolution than its predecessor the 300D. It also has a number of enhancements: handling and processing is very speedy and - thanks to the 350D's high resolution and low noise sensor - image quality is excellent. It's also small, light and built to last.							
6.1Mp	n/a n/a	depends on lens	SLR 1.8in	1/8000 to 30 secs	Compact Flash none	depends on lens	Hotshoe
Costing £899 with lens, Nikon's D70 proves that digital SLRs can be outstanding and affordable. Canon's 300D delivers similar quality and costs less, but we think that the D70 is better built and handles slightly faster. As such it's perfect for anyone who wants the best camera around, but is still not prepared to spend more than £1,000. The Nikon comes highly recommended.							
8Mp	5x 28-140mm	f2.4-3.5	EVF 1.8in	1/4000 to 16 secs	Compact Flash none	5cm	Hotshoe
The 8Mp Olympus C-8080 combines fast startup, excellent build quality and a long-lasting battery to become one of the best cameras in its class. The 5x zoom may not be as long as its rivals, but its quality is superb and beaten only by the pricier Canon PowerShot Pro 1. At £749, it's also the cheapest 8Mp camera and therefore comes highly recommended.							
6.1Mp	n/a n/a	depends on lens	SLR 2.5in	1/4000 to 30 secs	Compact Flash none	depends on lens	Hotshoe and studio sync
Konica Minolta's Dynax 7D is a 6.1Mp DSLR with a unique difference: it features a highly effective built-in anti-shake system which works with any lens you attach. And it only kicks in when you are taking a shot, so it doesn't waste any juice. There's also a huge 2.5in screen and wonderful manual control. It comes highly recommended, but its prices and features can't keep up with its rivals.							

PCADVISOR  
TEST  
CENTRETop 10 Digital  
camcorders

Image processor	CCD	Optical zoom Digital zoom	Max aperture	Still image resolution	FireWire-in FireWire-out	Focal distance range	Multimedia card
1/6in CCD	0.8Mp	22x 440x	f1.6	1,024 x 768	yes yes	2.8-61.6mm	8MB
After a raft of price cuts the 750i comes out on top, offering a high 22x optical zoom and a whopping 440x digital zoom at a fantastic price. Manual focus, white balance, shutter and exposure are available, but the Canon's automatic settings are capable. There's also a headphone socket for monitoring audio and an accessory shoe. An excellent buy for the cost-conscious consumer.							
1/6in CCD	0.8Mp	22x 440x	f1.6	1,024 x 768	yes yes	2.8-61.6mm	8MB
Despite being lighter and smaller, the MV850i doesn't seem like much of an advancement on its excellent predecessor the MV750i. And as - at the time of writing - you can get the latter model for £10 less, it's much the better value. But none of this should take away from the fact that, if we didn't have its illustrious predecessor, this camcorder would be the standout model on the market.							
3 x 1/6in CCD	0.54Mp x3	10x 500x	f1.8	1,536 x 1,152	yes yes	2.45-24.5mm	8MB
With its pocket portability and decent still images, this is a great camcorder for holidaymaker and hobbyist alike. Even with a price cut, the Panasonic just can't match the value of the Best Buy Canon, but it remains a brilliant model. Despite its small size, it's packed with features. In our tests, the NV-GS120 offered amazing colour fidelity both outdoors and under artificial lighting.							
1/4in CCD	1.33Mp	10x 500x	f1.8	1,600 x 1,200	yes yes	3.8-38mm	8MB
Sitting at the higher end of JVC's camcorder price range, the GR-D230 is still one of the cheapest models around. With a 1.33Mp 1/4in CCD, it's reasonably well specified for the money with a fairly comprehensive range of controls including manual focus. Unfortunately, though, the JVC features menu buttons rather than a lens ring and this can be a bit fiddly to operate.							
1/3.4in CCD	2.23Mp	14x 280x	f1.8	1,632 x 1,224	yes yes	4.8-67.2mm	8MB
Although not the cheapest model here, the MVX25i is a connoisseur's camcorder - and a recent price cut has made it a viable proposition. It's packed with features and offers close to the best image quality we've seen in a single-chip model under £1,000. If you're serious about video, but still want a camcorder to stand in for your digital camera, the MVX25i should be top of your list.							

>> Buying advice  
Digital camcorders

• **Megapixel rating** Image quality is not as easy to gauge with digital video as it is with stills. When a manufacturer slaps '800,000 pixel CCD' on the side of the box this refers only to the resolution of the still pictures it produces, not the video. DV camera resolutions tend to be much lower than those of cameras. Camcorders offering 1Mp (megapixel) quality are still in the minority and only one of the models in our Digital camcorder chart can top this figure.

• **Resolution** Video resolution is given as a horizontal and vertical resolution for the number of lines of colour that go to make up the picture on

your TV screen. But many cameras do not advertise this. The vertical resolution for DV camcorders is usually 540 lines - the theoretical limit for PAL, the UK's video format. The horizontal resolution will vary between models, but the basic rule is that the higher the number of lines the better the video quality is likely to be.

• **FireWire** To edit your video footage on your PC you'll need FireWire-in and FireWire-out. This means that you can record the final version from a PC to a MiniDV tape in your camcorder without experiencing any loss of picture or sound quality.





## Top 10 Multifunction devices

			Max printer resolution Optical scanner resolution	Quoted and actual print speed (ppm)	Actual A4 scan speed (secs)	Supported interfaces	Ink costs Print life (pages)	Memory card drive Digicam port	Dimensions (wxdxh) Weight
<b>PCADVISOR BEST BUY</b>	<b>1</b>	<b>Epson Stylus CX6600</b> 0800 220 546 www.epson.co.uk Last month 1	• £149 inc VAT • 1-year repair-or-replace warranty • First review Oct 04	5,760x1,440dpi 1,200x2,400dpi	8=22 C=12 B=11.3 C=3.5	100dpi=13 300dpi=37	US8 2.0 B=E24 C=E10 x 3 B=950 C=450 x 3	yes no	450x429x218mm B.7kg
		Building on Epson's impressive past, this model takes the MFO to new heights. The many features include a built-in flash memory drive and LCD text display, although the lack of PictBridge connectivity is a shame. Performance is fast and the CX6600 is close to the top-end Epson Stylus C86 inkjet printer in results. Scan speed isn't as exemplary, but the results are a feast for the eyes.							
<b>PCADVISOR RECOMMENDED</b>	<b>2</b>	<b>Dell Photo AIO 962</b> 0870 907 5818 www.dell.com/uk Last month 2	• £119 inc VAT • 1-year exchange warranty • First review Jun 05	4,800x1,200dpi 1,200x4,800dpi	B=22 C=15 B=12.2 C=4.3	100dpi=14 300dpi=33	US8 1.1/2.0 B=E16 C=E27 B=11/8 C=11/8	no yes	498x419x303mm 11.3kg
		With its standalone fax facilities and automatic document feeder, it's the office-bound that have the most to gain from buying this superb MFD from Dell. And should you want to pay an extra £59, you can kit it out with wireless-networking capabilities. It works well as a general MFO, generating smooth text output and high-calibre graphics. The scan facilities aren't as good, though.							
	<b>3</b>	<b>Epson Stylus CX3600</b> 0800 220 546 www.epson.co.uk Last month 3	• £85 inc VAT • 1-year repair-or-replace warranty • First review Jan 05	5,760x1,440dpi 600x1,200dpi	8=15 C=15 B=9.4 C=7.3	100dpi=15 300dpi=37	USB 1.1/2.0 B=E14 C=E10 x 3 B=380 C=450 x 3	no no	430x344x170mm 6.6kg
		The £85 Epson Stylus CX3600 hides its budget-priced roots well. You won't find memory card slots or glorious quality at top speeds, but that's what the Stylus CX6600 is for. It isn't the best for text printing, but graphics are much better. Scanning is good, and running costs are low considering the price. For those who can't afford the CX6600, this is a solid compromise.							
	<b>4</b>	<b>Canon Pixma MP760</b> Buy direct from Dabs.com www.canon.co.uk New	• £299 inc VAT • 1-year onsite warranty • First review Jul 05	4,800x1,200dpi 2,400x4,800dpi	B=25 C=17 B=12 C=4.3	100dpi=12 300dpi=21	US8 2.0 B=E10 x2 C=E10 x3 B=385 x2 C=440 x3	yes yes	486x472x267mm 12.4kg
		At just under £300 the Pixma MP760 won't suit everyone. Standard print work alone does not justify the price tag, but the Canon can choose between two types of black ink so as to get optimal print quality in text and photo modes. The results are spectacular. Add to this superb scanning and the dual paper path system, and this is a dream buy for the well-heeled photo enthusiast.							
	<b>5</b>	<b>Canon Pixma MP130</b> Buy direct from Dabs.com www.canon.co.uk Last month 4	• £110 inc VAT • 1-year onsite warranty • First review Jun 05	4,800x1,200dpi 1,200x1,200dpi	B=18 C=13 B=8.7 C=3.3	100dpi=20 300dpi=42	USB 1.1/2.0 B=E7 C=E15 B=140 C=140	yes no	433x423x276mm 5.4kg
		The Canon weighs in with some great features for a fairly modest price tag. It also includes a memory card drive - the only MFO at this price point to do so. It proves a superior model for text work. Even at the lowest quality setting, the lettering is well defined (if a little faint) and strong text output is possible at 6.8ppm. Graphics aren't as fast, though, and scan facilities are basic.							



## Top 10 Digital projectors

			LCD/DLP technology	Maximum brightness Contrast ratio	Lamp life (hours) Replacement bulb	Dimensions (wxdxh) Weight	Native resolution	Wireless facilities Memory card	Noise Economy mode
<b>PCADVISOR BEST BUY</b>	<b>1</b>	<b>InFocus X2</b> 0800 028 6470 www.infocus.com Last month 1	• £599 inc VAT • 2-year return-to-base warranty • First review Sep 04	OOR OLP 1,600 Ansi lumens 2,000:1	3,000 varies	249x327x106mm 3.1kg	800x600 (SVGA)	no no	39db/37dB yes
		Hogging the top spots are two sub-£700 beauties from InFocus and Optoma. The InFocus wrested back the initiative recently thanks to its latest cut, and the legacy of glorious features left to it by the InFocus X1 means it delivers handsomely on contrast ratio and image quality. We would prefer the projector to be a little quieter, but it definitely deserves its first place.							
<b>PCADVISOR RECOMMENDED</b>	<b>2</b>	<b>Optoma EP738</b> 01923 691 866 www.optomaeurope.com Last month 2	• £699 inc VAT • 2-year return-to-base warranty • First review Mar 05	DDR OLP 1,800 Ansi lumens 2,000:1	2,000 £195	265x236x104mm 2.4kg	800x600 (SVGA)	no no	32db/27db yes
		Few sub-£1,000 projectors are as versatile as the Optoma EP738, so it's a surprise to see this model shatter the £700 price point. 800x600 native mode aside, this is a projector of many triumphs. The brightness rating and contrast ratio are high, and the PC output is sharp. It's also light and has a low noise rating, meaning that the EP738 has something for everybody.							
	<b>3</b>	<b>NEC VT570</b> 0845 234 4020 www.nec.co.uk Last month 3	• £1,195 inc VAT • 3-year onsite warranty • First review Nov 04	LCO 1,300 Ansi lumens 400:1	2,000 £283	294x260x93mm 2.9kg	1,024x768 (XGA)	no no	33db/28dB yes
		Don't let the price tag fool you into thinking that this is a projector without strong ambitions. With its large image, fine attention to detail and gorgeous colour palette, the NEC is a fierce contender. Throw in the versatile menu system and the low noise rating, and this projector may well be the number one choice for those who don't mind paying an extra £500 for quality.							
	<b>4</b>	<b>Toshiba TDP-S20</b> 0115 976 6958 www.toshiba.co.uk Last month 4	• £770 inc VAT • 3-year return-to-base warranty • First review Oct 04	OOR OLP 1,400 Ansi lumens 2,000:1	3,000 £349	2B5x254x98mm 3kg	800x600 (SVGA)	no no	36db/33dB yes
		Toshiba has cut the price on its TOP-S20 - a projector that's long been overrun by the likes of the Optoma EP738. It's significant that even a hefty price cut can push the Toshiba only into fourth place. It's inferior to the InFocus and Optoma in most areas - brightness, image quality, digital connectors. It's discreet, but even with a reduced price tag, this isn't the best deal in the chart.							
	<b>5</b>	<b>NEC LT20</b> 020 8752 3665 www.nec.co.uk New	• £1,640 inc VAT • 3-year onsite warranty • First review Jul 05	OOR OLP 1,500 Ansi lumens 2,100:1	2,000 £350	200x150x56mm 1kg	1,024x768 (XGA)	no no	38db/37dB yes
		Something of a mixed bag, the LT20 weighs just 1kg. It feels as light as a feather. The crisp image quality is commendable but we'd prefer to see the brightness slightly higher - 1,500 ansi lumens isn't perhaps as high as it ought to be for such a pricey projector. It's also extremely noisy - even in eco mode, 37db is as quiet as it gets - and with a high price tag such as this, that's not good enough.							

### >> Buying advice Digital projectors

- **Brightness** On a business model look for at least 1,300 Ansi lumens; for home use more than this will be overpowering. If the projector's confined to a small room a short-throw lens will produce a larger picture, but colour and focus options may be reduced. Economy mode sacrifices brightness in favour of longer lamp life and less noise.
- **Portability** If you need to carry the projector over long distances look for a model that is 1.5kg or lighter. A memory card slot means you can leave the notebook behind in the office, while wireless facilities let you control the

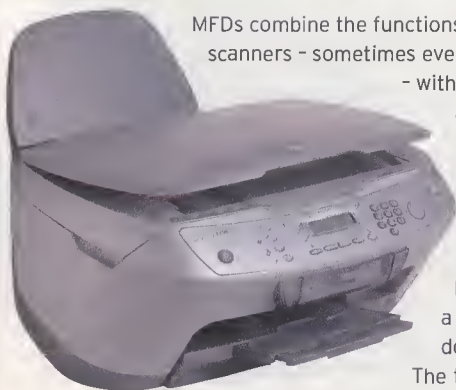
projector from several PCs without connecting and disconnecting leads.

- **Image detail** The higher the resolution support, the more detail used to generate the image. XGA (1,024x768) support is preferable for displaying apps, while SVGA (800x600) is fine for low-detail programs and home video.

- **Additional costs** Unless you are constantly using the projector you shouldn't need to change the lamp too often. It's still worth comparing the price of a replacement with the number of hours it will burn.



>> **Buying advice**  
**Multifunction devices**



MFDs combine the functions of printers and scanners - sometimes even fax machines - within one product. They also offer copying facilities, letting you quickly run off multiple versions of an image. With all of these facilities, MFDs aren't merely a great way of cutting down on desk space.

The fact that you only need to grasp a single interface - rather than several programs - increases efficiency.

An MFD isn't necessarily cheaper than the separate components. One of this month's MFDs costs £299, so they're an investment you should consider carefully. The point of a MFD is that it offers multi-functionality - but a model with brilliant printer technology is not a good deal if scans are poor quality.

### Try before you buy

Ask to see some test prints before buying. And don't be fooled by manufacturers' figures - the MFDs we tested offered only around half the claimed speed. Place more emphasis on optical resolutions than interpolated resolutions. A good MFD should make a decent fist of all of its functions, but almost all models will be stronger at some activities than others. If high-quality text is important to you, for instance, look for an MFD that fares well on such output.

The best MFDs are designed to work as standalone machines, so you won't have to switch on your PC. Such models will have an external control panel which you can use to change the detail and paper settings, or move from scan to print to copy mode. If you're intending to use the MFD as a standalone, experiment with the interface before you buy to make sure that you're comfortable with it. However, don't ignore the PC software interface, since there's a good chance you'll still want to use this on a regular basis.

You might find it convenient to buy a model with a memory card reader. This should be capable of reading all major formats and will allow you to transfer pictures directly to your MFD. You may also be able to save scanned images directly to the card. Digital camera enthusiasts have the most to gain from a memory card reader, but look out for standards such as PictBridge which allow you to connect cameras directly to the MFD through a USB cable.

Most MFDs connect through a USB 1.1 or USB 2.0 interface. If your PC supports the latter, get an MFD with USB 2.0 for increased speed. If you want to use an MFD on a network look out for network support - but be prepared to pay for the privilege. And consider running costs - most MFDs use inkjet technology and you could find yourself paying dearly in the long run.

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PCADVISOR  
TEST  
CENTRE

Top 10  
Scanners

PCADVISOR  
BEST BUY



**Epson Perfection 2480 Photo**  
0800 220 546  
www.epson.co.uk  
Last month 1

- £79 inc VAT
- 1-year onsite warranty
- First review Oct 04

Interface connection

Supported operating systems

True colour depth

Optical resolution  
Software interpolated

Transparency adapter

Dimensions (wxdxh)  
Weight

Software includes

We thought the previous Best Buy - the Canon 5200F - was a catch, but this model blows it out of the water. And it does so by offering everything that made the CanoScan and OneTouch so appealing, but doing it at a reduced price. The film-scanning facilities and software interface aren't as comprehensive, but the resulting scans are fast and packed with colour. At this price you can't lose.

PCADVISOR  
RECOMMENDED



**Epson Perfection 4180 Photo**  
0800 220 546  
www.epson.co.uk  
Last month 2

- £179 inc VAT
- 1-year onsite warranty
- First review Jan 05

US8 2.0

98/Me/  
2000/XP

48bit

4,800x9,600dpi  
12,800dpi

yes

276x458x117mm  
3.9kg

Adobe Photoshop Elements,  
Abbyy FineReader 5.0 Sprint

There are cheaper scanners around, but not many can match the sizzling colours and ultra-realistic reproduction afforded by the 4180 Photo. It has a great turn of speed, and the film slide facilities and image quality enhancer are useful additions. The only caveat is that this scanner is almost as heavyweight in its dimensions as it is in its specifications, so you'll need plenty of room.



**Canon CanoScan 8400F**  
Buy direct from Dabs.com  
www.canon.co.uk  
Last month 3

- £175 inc VAT
- 1-year return-to-base warranty
- First review Mar 05

US8 2.0

98/Me/  
2000/XP

48bit

3,200x6,400dpi  
19,200dpi

yes

278x500x122mm  
4.4kg

Adobe Photoshop Elements,  
OmniPage SE 2.0

A good choice for those who need to work with negatives but don't want to purchase a dedicated film scanner, the Canon can deal with up to a dozen 35mm transparencies at once, producing high quality results. Speeds are adequate, although the B400F isn't as fast as its price might suggest. It's also fairly bulky and, in this price range, the Epson Perfection 4180 Photo is better.



**Visioneer OneTouch 9220 USB**  
0870 774 4480  
www.visioneer-europe.com  
Last month 4

- £100 inc VAT
- 1-year return-to-base warranty
- First review Mar 04

US8 2.0

98/Me/  
2000/XP

48bit

2,400x4,800dpi  
4,800dpi

yes

430x300x66mm  
2.6kg

ArcSoft PhotoImpression,  
ScanSoft PaperPort

The Visioneer remains the speed demon in the scanners chart, generating 300dpi and 600dpi A4 scans in 15 and 25 seconds respectively. The Canon still has the edge in terms of overall features, but with a price cut the 9220 vaults back in front. The OneTouch can't match the Epson 2480 Photo for overall value, but it does offer smooth scan quality and the fastest speeds in town.



**Canon CanoScan 5200F**  
Buy direct from Dabs.com  
www.canon.co.uk  
Last month 5

- £129 inc VAT
- 1-year return-to-base warranty
- First review Sep 04

US8 2.0

98/Me/  
2000/XP

48bit

2,400x4,800dpi  
9,600dpi

yes

285x512x112mm  
4.1kg

ArcSoft PhotoStudio S.S.,  
OmniPage SE 2.0

Languishing in fifth place, the CanoScan is arguably still a slick package. Film scanning is handled with aplomb, the proprietary Fare Level 2 technology removes dust and scratches from scans, while the glorious turn of speed remains as impressive as ever. But this is a competitive market - the Visioneer is faster still while the Epson 2480, at £50 less, looks an absolute bargain in comparison.

PCADVISOR  
TEST  
CENTRE

Top 10  
CRT monitors

PCADVISOR  
BEST BUY



**Samsung SyncMaster 793DF**  
Misco: 0800 038 8880  
www.samsungelectronics.co.uk  
Last month 1

- £94 inc VAT
- 3-year onsite warranty
- First review May 05

Tube type technology

Actual/viewable area

Max resolution @75Hz

Dot pitch

Dimensions (wxdxh)

Weight

sRGB compliant

DynaFlat shadow mask

17in/16in

1,024x768

0.25mm

401x410  
x378mm

14.3kg

no

Even the cheapest flat-panel will cost more than the Samsung, and the vibrancy of the 793DF's picture will give even the best flat-screens a run for their money. Of course, you have to put up with the bulky casing dominating your room. And the resolution support is not great - 1,024x768 is your lot. But if you want to save money without compromising on quality, this is a good choice.

PCADVISOR  
RECOMMENDED



**Hyundai ImageQuest Q770**  
Overclockers: 0870 443 0880  
www.hyundaiq.com  
Last month 2

- £87 inc VAT
- 3-year onsite warranty
- First review May 05

DynaFlat shadow mask

17in/16in

1,024x768

0.25mm

380x372  
x411mm

15.5kg

no

Strictly speaking, the Hyundai is the best deal in the chart. But it isn't quite able to match the resilient colour of the Samsung. The ImageQuest still packs a dazzling picture though, and for text output it's the better of the two screens - although if it's sharp text you want a flat-panel is definitely your best option. The Hyundai is sensitive to electrical sources, so keep it clear of power lines.



**Mitsubishi Diamond Plus 93SB**  
Jigsaw24.com: 0870 730 6868  
www.nec-mitsubishi.com  
Last month 3

- £195 inc VAT
- 3-year onsite warranty
- First review Feb 03

Diamondtron SuperBright aperture grille

19in/18in

1,600x1,200

0.25mm

442x448  
x443mm

23kg

yes

Easily adaptable and with a fresh and vibrant screen, the 93SB excels at the essentials. Perhaps the most impressive aspect of this monitor is its price tag. It offers a vast 18in actual viewing area for two-thirds of the price of a comparable flat-panel. Combine this with the superlative performance and you can see why the 93SB held on at the top of our chart for so long. It's still a great deal.



**Iiyama Vision Master Pro 454**  
Buy from Dabs.com  
www.iiyama.co.uk  
Last month 4

- £250 inc VAT
- 3-year onsite warranty
- First review Mar 03

Diamondtron U2 aperture grille

19in/18in

2,048x1,536

0.24mm

450x447  
x450mm

23.5kg

yes

Strong graphics output is almost a given with an Iiyama, but the Pro 454 also excels in terms of the facilities it boasts. Decent onboard speakers are included, as is a four-port USB hub and an extra dose of brightness for video applications. The Iiyama's graphics output is vibrant and text is well defined, although it won't make a first-class job of both simultaneously.



**LG Flatron F700P**  
Buy from ebuyer.com  
www.lge.co.uk  
Last month 5

- £138 inc VAT
- 3-year onsite warranty
- First review Feb 03

LG Flatron aperture grille

17in/16in

1,600x1,200

0.24mm

415x433  
x413mm

18kg

no

The silver F700P may be attractive, but for image quality you should look elsewhere. The specifications compare favourably to the competition, but in operation the LG no more than hints at its supposedly high-calibre aperture grille technology, producing rather insipid graphics images. Its good text output may please business users, but for this money you can get better value.

>> Buying advice  
Flatbed scanners

- **Resolution** Optical resolution is a measure of the hardware's capabilities. While 2,400x4,800dpi (dots per inch) is widely available, some top-end scanners boast resolutions in excess of 3,200x6,400dpi. Higher resolutions use more pixels for greater detail, resulting in larger file sizes.

- **Colour depth** This tells you the number of colours that can be recognised. Most scanners now come with 48bit colour as standard, but check this.

- **Software** Scanners generally come with all the necessary programs, although you're likely to get cut-down or old versions. Contact the software

manufacturers and you may be able to get the latest editions at reduced prices. OCR (optical character recognition) software scans printed text and translates it into editable documents. In terms of photo editing, Adobe's Photoshop Elements is one of the best bundled packages on offer.

- **Interface** USB 2.0 is becoming the standard interface between scanner and PC. It's also the quickest option. FireWire units are available but remember that unless your PC already has the relevant port you'll need to buy and install a specialist card.



>> Buying advice  
CRT monitors



Traditional monitors use CRT (cathode ray tube) technology - as opposed to the LCD (liquid crystal display) screens used in flat-panels. Due to the limitations of CRT technology, the entire image area generated by the tube won't be visible. This means a 19in monitor will be able to display only an 18in image.

The type of tube used by the monitor will be a factor in the image quality. Aperture grille technology (the Diamondtron and Trinitron tubes, for example) tends to be darker and more intense, as opposed to the lighter and breezier images generated by shadow mask tubes. Some tubes can boost the boosted for extra illumination. Usually switched on and off through a button on the monitor's control panel, a super bright option can be a real boon for detail or text work.

### Join the dots

The larger the monitor, the finer you want the dot pitch. Ideally a 19in monitor should be capable of handling 0.24mm, although 0.25mm is satisfactory. Think carefully about any monitor with a dot pitch of 0.26mm or more. Also, check that the dot pitch is being measured vertically. Some manufacturers will quote the horizontal dot pitch, which generally shaves about .05mm from the figure. If in doubt, ask to view the monitor in action before you buy.

Resolution support should be kept in perspective. Even on a 19in screen, a resolution of 1,920x1,440 is going to prove too much for general work. Although it may be useful to have the option of 1,920x1,440, you certainly won't need a resolution higher than 1,600x1,200 - indeed, manufacturers recommend 1,280x1,024 on a 19in screen. For 17in models, a resolution of more than 1,280x1,024 could make for extremely uncomfortable viewing.

A high refresh rate will produce much smoother output and reduce eye strain. Look for a refresh of 85Hz or higher on any resolution that you intend to use regularly.

If you're concerned that the colour scheme on your monitor won't match the one used on your digital camera or printer, look for sRGB (standard red green blue) compliance. This sets down precise guidelines on the tone, saturation and brightness of each colour, and should allow for greater consistency across all sRGB-compliant devices. This isn't as useful as it sounds, because the results are still reliant on how good the device itself is. Nevertheless sRGB is a step in the right direction.



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Top 10  
Colour inkjet printers

			Max paper size	Max resolution	Quoted print speed	Actual print speed	Supported interface types	Dimensions (wxdxh)	Ink costs	Print life (pages)
1		<b>HP DeskJet 6540</b> Buy online from HP or Dabs.com www.hp.com/uk Last month 3	A4	4,800x 1,200dpi	8=30ppm C=20ppm	8=16ppm C=6ppm	USB 1.1/2.0	450x367 x144mm	8=£21 C=£24	8=800 C=450
Now available through HP's website for just £74, this is a stunning buy. Its performance figures, gorgeous colour quality, clear text and versatile photo features always made it an excellent, if expensive, printer. Of course, it's only at the fastest settings that it's comfortably superior to the Canon and Epson. But at this price, there's now no doubt that the 6540 is the best overall deal.										
2		<b>Canon Pixma iP3000</b> Buy direct from Dabs.com www.canon.co.uk Last month 1	A4	4,800x 1,200dpi	8=22ppm C=15ppm	8=11ppm C=4ppm	USB 2.0	418x286 x170mm	8=£11 C=£9 x 3	8=330 C=460
It was really only the significant price gap that ever made this a better buy than the DeskJet, and the latter's sizzling speeds and unsurpassed colour quality now make it the top choice. With that in mind, the Canon is still quite a performer and, once you get to the middle print settings, it pretty much matches the HP on speed. The latter's still slightly superior on print quality however.										
3		<b>Epson Stylus C86 Photo</b> 0800 220 546 www.epson.co.uk Last month 2	A4	5,760x 1,440dpi	8=22ppm C=12ppm	8=13ppm C=4ppm	USB 1.1/2.0, parallel	460x437 x302mm	8=£23 C=£10 x 3	8=950 C=450
Despite being edged into third place by two supremely talented printers, the Epson is well worth looking out for. Not packed with quite as much glorious colour as the HP, the Epson still manages to produce a high calibre of print. Crisp text can be obtained at the fairly generous rate of 2.8 pages per minute, and as a modestly priced all-rounder, this is still a very good buy.										
4		<b>HP Photosmart 8150</b> 0845 270 4222 www.hp.com/uk Last month 4	A4	4,800x 1,200dpi	8=26ppm C=20ppm	8=7.5ppm C=6ppm	USB 2.0	480x394 x171mm	8=£21 C=£17	8=800 C=450
In terms of photo capabilities this printer is second to none - indeed, it swept to victory in our recent photo printers roundup, with its unsurpassed colour printing leaving its competitors looking rather dull in comparison. However, it is extremely expensive - costing over twice as much as the Pixma iP3000 - and for general everyday printing it simply doesn't justify the cost.										
5		<b>Epson Stylus C66</b> 0800 220 546 www.epson.co.uk Last month 5	A4	5,760x 1,440dpi	8=17ppm C=9ppm	8=10ppm C=3ppm	USB 1.1/2.0	460x437 x302mm	8=£14 C=£10x3	8=420 C=450
Although the C66 is cheaper than the CB6, it falls behind on overall value. Image quality is inferior to the other entries and the impressive speed is only possible at the lowest quality setting so prints are faint and poorly defined. To get good results, you must settle for 1ppm to 1.6ppm. It doesn't support the high-capacity black cartridge either, making running costs more expensive for text.										

PCADVISOR  
TEST  
CENTRE

Top 10  
Mono laser printers

			Installed RAM Max RAM	Hardware res Software res	Quoted print speed	Actual print speed	Supported interface types	Dimensions (wxdxh) Weight	Cost of toner	Print life (pages)
1		<b>Lexmark E330</b> 0870 444 0044 www.lexmark.co.uk Last month 1	32MB 160MB	1,200x1,200dpi 2,400x2,400dpi	26ppm	24ppm	USB 1.1/2.0, parallel	396x353x249mm 10kg	£75	6,000
The E330 is a first-class printer that generates quality output despite carrying an inexpensive price tag that still seems highly reasonable. The maximum resolution of 1,200x1,200 is strong and the ample 32MB of memory can be upgraded to 160MB. Better still is the high print quality and the performance - 24ppm in our real-world tests - which is unmatched at this price point.										
2		<b>Kyocera FS-920</b> 0845 710 3104 www.kyoceramita.co.uk Last month 2	32MB 288MB	1,800x600dpi n/a	18ppm	17ppm	USB 2.0, parallel	380x390x245mm 9.5kg	£52	6,000
Kyocera's FS-920 churns out pages for just 0.9p a time. Add the sub-£200 price tag and you have a printer worthy of attention. It's surprisingly robust and the heavyweight specs are great at this price point. Text and graphics look sharp, and the print speed of 17ppm is fast enough. A great choice for home users and small workgroups, this is a perfectly pitched model from Kyocera.										
3		<b>Samsung ML-1520</b> 0800 521 652 www.samsungelectronics.co.uk Last month 3	8MB 8MB	600x600dpi n/a	14ppm	13ppm	USB 1.1/2.0	348x355x193mm 7kg	£57	3,000
The ML-1520 is a testament to the value for money offered by today's mono lasers. Buttons and options are kept to a minimum, and the maximum resolution is only 600x600dpi. Nonetheless, the Samsung's sharp output revealed plenty of depth, while the almost silent operation will prevent the ML-1520 from being too obtrusive. Our only concern is the high cost of consumables.										
4		<b>Lexmark E232</b> 0870 444 0044 www.lexmark.co.uk Last month 4	16MB 80MB	600x600dpi 2,400x2,400dpi	21ppm	18.5ppm	USB 1.1/2.0, parallel	396x353x249mm 10kg	£75	6,000
This is an ideal model for first-timers - easy to install, simple to use and robust. It's not quite as cheap as the ML-1520, but the high page volume afforded by the toner results in you paying just 1.25p for a page of text - the Samsung requires you to lash out half as much again. Add the higher print speed and you have a mono laser that's only a price cut away from a better position.										
5		<b>Kyocera FS-1920</b> 0845 710 3104 www.kyoceramita.co.uk Last month 5	32MB 288MB	1,200x1,200dpi 1,800x600dpi	28ppm	27ppm	USB 2.0, parallel	345x390x300mm 13kg	£60	15,000
At first glance the Kyocera's price seems high. But its running costs - at a mere 0.4p per page - are perfect for high-volume users. The Kyocera achieved 27ppm in our tests and this is testament to its power and speed. The upgrade options boost the paper input capacity to 2,100 sheets and maximum memory to 288MB, while the environmental features will ease your conscience.										

>> Buying advice  
Colour inkjets &  
mono lasers

- **Price** Don't spend more than £100 for an inkjet unless you want photo quality prints. Mono lasers cost more, so think carefully. If it will be heavily used look at mid-range networkable devices.
- **Interface** Most printers give the option of parallel and USB ports. USB 2.0 offers faster data transfer rates than the standard USB interface.
- **Resolution** Focus on the hardware resolution - 600x600dpi is fine for a mono laser but for high-quality prints 1,200x1,200dpi is better. Most colour inkjets can handle 4,800x1,200dpi.

- **Speed** Take quoted figures with a pinch of salt. For an inkjet printer 9ppm (pages per minute) in mono and 5ppm in colour is good. For low-end laser printers 14ppm is adequate but for a heavy-duty £300-plus model expect 20ppm.
- **Running costs** Check the cost of replacement cartridges - and how many pages they produce - to work out the cost per page. With inkjets 4ppm (pence per page) for mono and 7ppm for colour is the maximum, although costs rise for a photo printer. Mono lasers are far less expensive to run.

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### Top 10 18-21in flat-panels






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BEST BUY

	Screen size	Native resolution	Pixel pitch	Dimensions (wxdxh) Weight	Brightness (candelas per m²) Contrast ratio	Response rate	Digital connector
1 	19in	1,280x1,024	0.294mm	419x213x409mm 7.8kg	220 500:1	16ms	no
With its successor due out about now, this is the last showing for the Sharp LL-191A. If you can find one, this is a fantastic 19in screen. The lack of a DVI counts against it, but there's nothing to match the Sharp's mouthwatering picture. The dedicated mode button allows you to push the image to the max, and the response rate is good. And at just £300, this is an absolute bargain.							
2 	19in	1,280x1,024	0.294mm	416x238x460mm 7.5kg	250 800:1	8ms	yes
Just edging the LaCie for second place, the ViewSonic grabs plaudits for its 8ms response rate. Allowing you to play games and view fast-moving images, the VP191s is strong where the LaCie falls down. Add to that a juicy contrast ratio and some colourful images, and this looks a great buy. The only caveats are the lack of graphics modes, and the disappointing viewing angles.							
3 	19in	1,280x1,024	0.294mm	413x223x435mm 9.1kg	250 400:1	25ms	yes
The LaCie is functional rather than eye-catching. Its image might not be as lavish as the Sharp's, but this is still an excellent screen - shades are wonderfully intense, and the picture has bags of depth. The only problem is the 25ms response rate, which may put off avid games players. The rest of us, however, will find its features and performance distinctly alluring.							
4 	19in	1,280x1,024	0.294mm	413x220x387mm 7.5kg	250 500:1	25ms	yes
The LCD1970NX combines a handsome feature set with extremely palatable picture quality. Text is well defined but a little faint, while the menu system is hampered by an awkward joystick-style navigation aid. The options are good and the choice of colour modes welcome, but these would be more useful if it was possible to access them via a dedicated button.							
5 	20.1in	1,280x1,024	0.255mm	448x267x480mm 8.5kg	250 400:1	16ms	yes
The VP201b crams an enviable level of depth into its pictures, but we weren't as impressed with the colour palette and we couldn't achieve the same clarity of tone as we did with the Sharp. The extra 1.1in of screen creates a very cinematic image, though. If you have £600 to spend on a flat-panel, you'll be happy with this one. Just don't expect it to be the last word in 20.1in technology.							

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### Top 10 17in flat-panels

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RECOMMENDED  
BEST BUY

	Screen size	Native resolution	Pixel pitch	Dimensions (wxdxh) Weight	Brightness (candelas per m²) Contrast ratio	Response rate	Digital connector
1 	17in	1,280x1,024	0.264mm	387x212x409mm 3.5kg	350 350:1	10ms	yes
Iiyama's flagship 17in ProLite E430S has finally come to the end of its life, but in the brief interlude before Iiyama refreshes its line, the E435S will make a very able substitute. Text output is easy on the eye, and while image quality may not quite measure up to that of its predecessor - or the Sharp LL-173G's - the E435S's searing colour palette puts it comfortably ahead of the rest.							
2 	17in	1,280x1,024	0.264mm	398x15x393mm 4.9kg	250 550:1	12ms	no
When we first reviewed it, the E247 LG L1730S redefined the concept of value. Since then it's gone down by another £59. And yet this no longer seems such a big deal; the impressive Iiyama E435S, for example, is just £16 more. That's not to say this isn't a good screen - the 12ms response rate is fantastic for gamers - and if price is the top priority, the LG might be your first choice.							
3 	17in	1,280x1,024	0.264mm	392x238x350mm 6.5kg	260 500:1	8ms	yes
The VP171s' 8ms response rate means it can refresh the screen as quickly as the majority of CRTs. Add to that the generous contrast ratio, sharp text output and image quality, as well as pivot facilities and height adjustable stand, and the VP171s easily justifies its price tag. Make sure that you buy a VP171s with an 8ms response rate however, as there are still 16ms models about.							
4 	17in	1,280x1,024	0.264mm	375x174x423mm 4.2kg	250 450:1	16ms	no
The Philips is a perfectly serviceable panel that's sure to deliver years of satisfaction. So why isn't it higher? Well, the problem is that while its specifications are fine - the 450:1 contrast ratio is respectable, as is the 16ms response rate - the 170S5FG never sets pulses racing. Image quality is solid and the price is reasonable. But this is a decent rather than an exciting performer.							
5 	17in	1,280x1,024	0.264mm	368x216x414mm 5.4kg	250 500:1	16ms	no
We usually associate the Sony name with products that are rather chic. Here, however, the case design is sober and the feature set borders on functional. The menu system is flexible, though, and graphics are fairly good. However, we were concerned by the consistency of the image, and in a tight race, this was enough to rule the Sony out of contention for a place in the top three.							

#### >> Buying advice Flat-panels

- **Price** The cost of flat-panels continues to fall. You can now snap up a good-quality 17in model for around £200. Meanwhile 19in models are finally becoming truly affordable, with some very strong models available for £300. Screens of 20in and above are still almost prohibitively expensive.
- **Resolution** Native resolution is the optimum screen setting for your flat-panel. A 15in model should have a resolution of just 1,024x768, while 17in, 18in and 19in models tend to have 1,280x1,024. Beyond 20.1in you should get 1,600x1,200.

- **Extras** If you want to maximise desk space look for onboard speakers - just bear in mind that the quality of these lags behind standard systems. Height-adjustable stands make it easier to position the screen, and pivot facilities are worth looking for.
- **Response rate** LCD flat-panels tend to take longer to refresh; as one image appears, parts of the last one may still be visible. On fast-moving programs such as games, this can be distracting. The key is response rate: 16ms should be fine; 12ms and below is perfect. A rate of 25ms could cause problems.

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Top 10  
Budget graphics cards






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PCAdvisor TEST CENTRE			Top 10 Budget graphics cards		Graphics processor	Installed RAM	Core clock Memory Clock	Ramdac Pixel pipelines	Max resolution @75Hz	Interface	DirectX 9.0 DVI
1		<b>Sapphire Radeon X800</b> Komplett.co.uk: 0870 872 7107 www.sapphiretech.com Last month 1	• £165 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X800	256MB DDR3	400MHz 350MHz	400MHz 12	2,048x1,536	PCI Express	yes yes	
Proving again that spending £150 to £250 is the way to go, the £165 Radeon X800 has a set of specifications to outclass its rivals. The memory interface is a sizeable 256bit, 256MB of DDR3 RAM is included and the number of pipelines is at least half as big again as on the other cards. The core and memory clocks may look a tad underdone, but the X800 shrugs off such trifles. A brilliant buy.											
2		<b>MSI NX6600-VTD128E Diamond</b> scan.co.uk: 0870 755 4747 www.msicomputer.co.uk Last month 2	• £120 inc VAT • 3-year warranty • First review Jul 05	nVidia GeForce 6600	128MB DDR3	400MHz 400MHz	400MHz 8	2,048x1,536	PCI Express	yes yes	
If you don't mind some compromises, a top gaming card can be bought for £120. Don't believe us? We present the NX6600-VTD128E. Played over a resolution of 1,024x768, the MSI rarely lags much behind the likes of the Radeon X800, despite being built around the inferior GeForce 6600. It comes with a bundle of appetising goodies and Video-In facilities. No other card offers so much for so little.											
3		<b>Gainward Ultra/1960PCX GS GLH</b> Komplett.co.uk: 0870 872 7107 www.gainward.de Last month 3	• £144 inc VAT • 3-year warranty • First review Feb 05	nVidia GeForce 6600 GT	128MB DDR3	540MHz 600MHz	400MHz 8	2,048x1,536	PCI Express	yes yes	
With this card Gainward has taken the 128MB 6600 GT graphics chip and pushed it to the extreme. The core clock speed has been boosted by 40MHz, while the memory clock has rocketed from 500MHz to a rapid 600MHz. The components are of an excellent quality so you can push the chip to higher speeds, but it doesn't come cheap and we feel you'd be better off plumping for the top two.											
4		<b>Connect 3D Radeon X700 Pro</b> Buy direct from ebay.co.uk www.connect3d.com Last month 4	• £110 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X700 Pro	128MB DDR3	420MHz 433MHz	400MHz 8	2,048x1,536	PCI Express	yes yes	
That the Radeon X700 Pro drops behind the nVidia GeForce 6600 is more a case of MSI doing a good job than the X700 Pro not measuring up. The latter's price tag is eye-catching and in terms of hardware specifications it's a winner. But across the majority of games the 6600 is better. Add to this the lack of software or Video-In facilities provided with the Connect 3D and the choice is stark.											
5		<b>Connect 3D Radeon X300</b> Buy direct from ebay.co.uk www.connect3d.com Last month 5	• £55 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X300	128MB DDR	325MHz 200MHz	400MHz 4	2,048x1,536	PCI Express	yes yes	
What's the point of spending even a small amount on something that offers so little advantage over an onboard graphics solution? If you use a digital camera the X300 will slightly enhance colours and graphics in comparison with an onboard controller. And if you don't have a DVI connector, it takes you one step closer to the digital world. But you'd still be better off saving your money.											

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Top 10  
Power graphics cards

PCADVISOR  
BEST BUY  
RECOMMENDED

				Graphics processor	Installed RAM	Core clock Memory Clock	Ramdac Pixel pipelines	Max resolution @75Hz	Interface	DirectX 9.0 DVI
1		<b>Sapphire Radeon X800 XL</b> Komplett.co.uk: 0870 872 7107 www.sapphiretech.com Last month 1	• £211 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X800 XL	256MB DDR3	400MHz 500MHz	400MHz 16	2,048x1,536	PCI Express	yes yes
Surprisingly, the affordable X800 XL's specifications compare well with the other Power cards. The memory interface and 256MB of DDR3 RAM are identical, as are the number of pixel pipelines. In terms of frame rates, the Sapphire is superior to the 6800 GT cards. It remains playable across all resolutions and should cope well with tomorrow's games. And you even get a decent software bundle.										
2		<b>Sapphire Radeon X850 XT PE</b> Komplett.co.uk: 0870 872 7107 www.sapphiretech.com Last month 2	• £347 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X850 XT PE	256MB DDR3	540MHz 590MHz	400MHz 16	2,048x1,536	AGP	yes yes
For those with ageing AGP systems, the Sapphire Radeon delivers top-line performance for £20 less than its PCI Express equivalent. Built around the Radeon X850 XT PE the Sapphire produces excellent frame rates at the highest resolutions. It's slower than Connect 3D's PCI-E version, but superior to the 6800 GT. Bear in mind that if you revamp your PC, this card's unlikely to be compatible.										
3		<b>Connect 3D Radeon X850 XT PE</b> overclockers.co.uk: 0870 443 0880 www.connect3d.com Last month 3	• £370 inc VAT • 2-year warranty • First review Jul 05	ATI Radeon X850 XT PE	256MB DDR3	540MHz 590MHz	400MHz 16	2,048x1,536	PCI Express	yes yes
The X850 XT PE isn't as far ahead of the competition as its price demands. To see the true capabilities of this card you'll need to crank up the detail levels and ratchet the resolution to 1,600x1,200. However, the Power division is about getting the best results and as games become more detailed, the X850 XT PE should continue to pump out playable frame rates while other cards fall away.										
4		<b>Asus Extreme N6800GT</b> Buy from Dabs.com uk.asus.com Last month 4	• £275 inc VAT • 3-year warranty • First review Jul 05	nVidia GeForce 6800 GT	256MB DDR3	350MHz 500MHz	400MHz 16	2,048x1,536	PCI Express	yes yes
Originally retailing for around £310, the 6800 GT seemed great value for money. Eight months later we're not so sure. It isn't that far ahead of the stunningly priced Radeon X800 XL and when it comes to the latest games the Radeon has a distinct advantage. In the 6800 GT's favour is its PCI-E SLI capabilities - in theory, when the 6800 GTs drop in price, you'll be able to snap up a better card.										
5		<b>PNY Verto GeForce 6800 GT</b> Buy from PCWComponentcentre.co.uk www.pnyeuropa.com Last month 5	• £270 inc VAT • 3-year warranty • First review Jul 05	nVidia GeForce 6800 GT	256MB DDR3	350MHz 500MHz	400MHz 16	2,048x1,536	AGP	yes yes
Those looking for an AGP graphics card are rapidly running out of options, but the PNY is certainly one. However, we would feel happier recommending it if the card was cheaper. And there are questions about the merits of the 6800 GT chip itself. It lacks the performance of the X850 XT PE's and our advice for AGP users is to wait until you upgrade your PC before choosing a graphics card.										

>> Buying advice  
Graphics cards

• **Graphics processor** Speed is determined by the graphics processor itself rather than the card. The highest performing chips are the nVidia GeForce 6800 Ultra and ATI Radeon X800, although cards equipped with these processors tend to be expensive. For more modest frame rates, the GeForce 6600 range have some great bargains. Game players may have to switch off some detail settings with a cheaper card, though.

• **RAM** Unless you're looking for a cheap card, don't settle for anything less than 128MB of DDR RAM. For high-end boards we advise that you go for 256MB.

• **Features** If you're spending in excess of £100, support for DirectX 9.0 and 8X AGP will keep your graphics up to date in the coming months. Digital connectors are becoming increasingly common and to ensure future compatibility demand a DVI (digital visual interface).

• **Dual-display support** An attractive optional extra that allows you to stretch your Windows desktop over two displays, in effect doubling your workspace. This reduces onscreen clutter and means that you won't need to keep flipping from one window to another.



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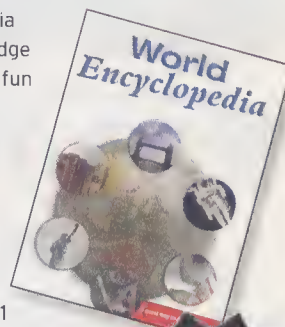
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## Unhappy slapping

Some of you may be familiar with my thoughts about mobile phones. For the rest, I will summarise: I believe them to be the work of Satan. And not even her best work.

So it may come as some surprise to hear that I do indeed carry one on my person. Well, grow up. I never said they didn't have their uses and I do my best to be discreet.

I particularly love my phone's camera and video functions. I have hundreds of pictures and clips of friends and family and will cheerfully bore people to death by showing them the lot. But not everyone uses these functions for such wholesome purposes.

Recently, something more sinister has been reported in the popular press. A craze known as 'happy slapping' - beating up complete strangers and filming it on mobile phones with video functions - is, apparently, widespread among the youth of today.

Although I understand the tendency of certain sections of the media to blow these

things out of proportion, the fact that some of these videos have been distributed on the internet shows that it has indeed happened.

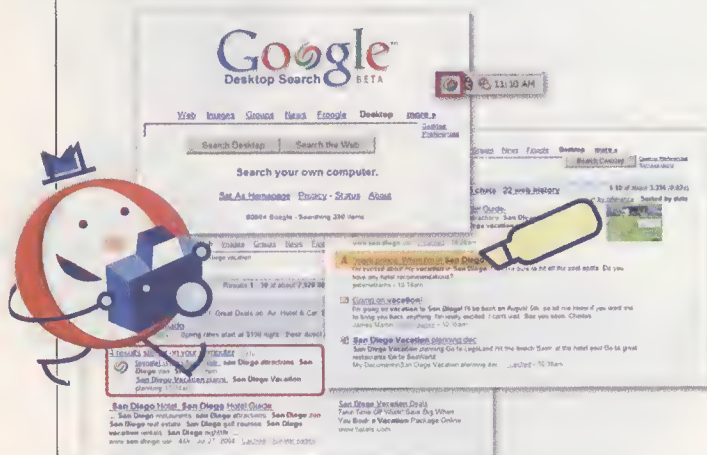
Now, I'm not for a minute going to chastise the television programmes that have been blamed by the *Daily Mail* et al. The problem exists; it's up to us to do something about it.

Any good criminal knows that you shouldn't leave any evidence. It seems rather idiotic not only to keep the film but to broadcast it as well and, for this reason, a special course of action needs to be taken.

I'm proposing that when the scallywags get caught - and let's face it, there's going to be incontrovertible evidence of what they've done - the punishment should be filmed, too. If they end up in borstal, put a webcam in their cell and broadcast it on the net. Every single minute. And if they're given community service, then let's have them filmed - hopefully cleaning out toilets with a toothbrush. That'll learn 'em.

**Any good criminal knows that you shouldn't leave any evidence. It seems rather idiotic not only to keep the film but to broadcast it as well**

## Next month



### The rise and rise of the Google empire

Google: it's no longer just about searching for information. Now you can search your PC's contents, organise and edit photos and find local places - for free. *PC Advisor* shows you how to capitalise.

### Photo story

We unveil the perfect place to store your digital snaps so your mates can have a gander, and which online print service offers the best value and range of formats.



### Can you kick it? (Yes you can)

Are PC products liable to collapse if you sneeze over them? We drop-kick a few to see how much stick they can handle.

### Gaming on the go

With Sony finally set to let us Brits have a turn on the PSP, *Go Digital* takes a long hard look at handheld consoles.

### When cameras go crazy

Camera-phone madness is getting out of control. We look at how to get decent pics from the snappers you can't escape.

### Word up

Hone your word processing skills with these advanced tips.



### DVD burners round-up

DVD-recording speeds continue to increase at a rate of knots, while double-sided, dual-layer and multifunction drives offer flexibility and capacity. We test, rank and rate 10 of the very best.



### Power mad

The latest souped-up power PCs are as unstoppable as monster trucks. After living with these giants for the past month, testing them to find out just how much PC you can get when money is no object, we reveal the 10 best PCs out there.

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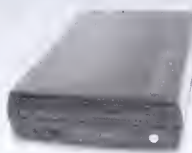
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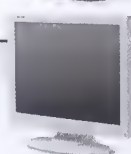
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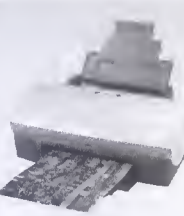
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- ☛ DMS II 3400, Computer Shopper Best Buy - July 2005
- ☛ DMS II 3400, PCW Recommended - July 2005
- ☛ DMS II 3400, The UK's Best Media Center, Digital Home Magazine - April 2005
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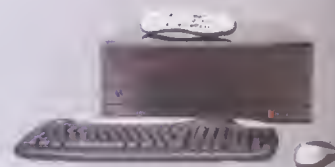
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